

Annual AVMA Meeting

Denver, Colorado

August 14-18, 1960

# Journal

OF THE  
**AMERICAN VETERINARY  
MEDICAL ASSOCIATION**



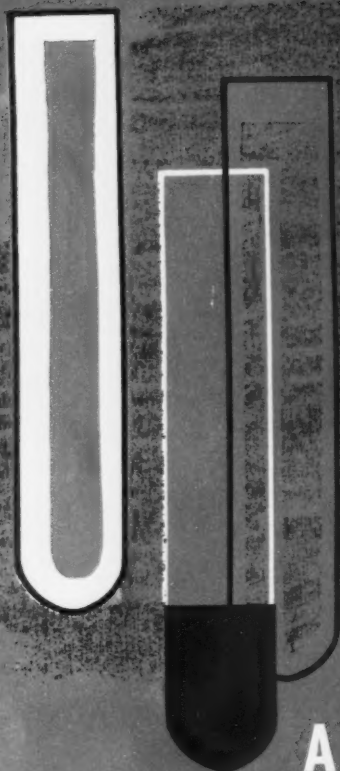
Explorer Scouts "explore" veterinary medicine. Page 573



Vol. 136

June 1, 1960

No. 11



Progress...

A product of research

# DURAGEN<sup>TM</sup>

A unique strain of *Erysipelothrix rhusiopathiae*, isolated after several years of research, forms the basis of DURAGEN, an improved erysipelas vaccine offered by Corn States Laboratories.

DURAGEN is completely safe; it cannot cause disease or contaminate lots. Reports from hogbelt practitioners confirm that DURAGEN is providing excellent immunity even in problem herds. It is available in 5, 10, 25, and 50 dose vials with diluent, at all CS distribution points.

**CORN STATES LABORATORIES, INC.**  
OMAHA, NEBRASKA  
SUBSIDIARY OF ELI LILLY AND COMPANY

# LEPTO BACTERINS NOW AVAILABLE

## Leptospira Pomona Bacterin

For immunization against leptospiral infections caused by *Leptospira pomona*. A single 5 cc dose of *Leptospira Pomona* Bacterin (Norden) provides excellent protection against this serotype. Vaccination sharply reduces the abortion rate in the infected herd and prevents spread, providing a high level of immunity for up to 14 months in cattle and at least 6 months in swine.

Supplied in 50 cc and 250 cc

## **NEW** *Leptospira Canicola- Icterohemorrhagiae* Bacterin

A single 5 cc dose provides a rapid, high immunity response against leptospirosis caused by *L. canicola-icterohemorrhagiae*. Identical technological production, processing, and testing methods are represented in both Norden leptospira bacterins.

Because both rabies and leptospirosis are transmitted from dogs to man, it is recommended that pets be immunized with bacterin simultaneously with rabies vaccination.

Supplied in 10-5 cc and 50 cc



**NORDEN LABORATORIES, INC.**

LINCOLN, NEBRASKA

# Journal

OF THE  
AMERICAN VETERINARY  
MEDICAL ASSOCIATION

Vol. 136 No. 11 June 1, 1960

## CONTENTS

### ARTICLES

- Problems Associated with the Use of the Newer Insecticides for Livestock  
Pests—R. D. Radeleff ..... 529
- Senator Humphrey Introduces Bill to Expand Veterinary Medical Facilities 539
- Radiographic Anatomy of the Canine Pelvic Limb. Part I. Fully Developed  
Limb—W. C. D. Hare ..... 542
- In Vitro Drug Sensitivity of Bacteria Isolated from Small Animals—  
Gianpaolo Maestroni and David L. Coffin ..... 550
- Modern Anesthetic Techniques and Equipment in Small Animal Practice—  
Eugene I. Brooks ..... 555
- Repair of Congenital Diaphragmatic Hernia and Umbilical Hernia in the  
Dog—H. C. Butler ..... 559
- A Simplified Method for Repair of Mandibular Fractures in the Dog—  
Emilio Estrada ..... 560
- Eye Changes in Beagles Following Intravenous Injection of Radium<sup>226</sup>—  
Rehfeld—Stover—Taylor—Atherton—Schneebeli ..... 562
- The Comparative Effects of Chlortetracycline and Oxytetracycline in the  
Treatment of Turkeys with Ornithosis—R. W. Moore and J. R. Watkins 565

### EDITORIAL

- Decline in Farm Population Presages Character of Tomorrow's Rural Prac-  
tice ..... 569

### FEATURES

- Correspondence ..... adv. p. 4
- Washington News ..... adv. p. 12
- What Is Your Diagnosis ..... adv. p. 35
- Public Relations ..... adv. p. 44
- Quiz for Quidnuncs ..... adv. p. 46
- History of the AVMA ..... adv. p. 49

Contents continued on adv. page 4

---

EDITORIAL STAFF: D. A. Price, *Editor in Chief*; A. Freeman, *Assistant Editor*; H. E. Kingman, Jr., *Managing Editor*; Eva G. Bailey, *Production Manager and Assistant to the Editors*.

OFFICERS OF THE AVMA: S. F. Scheidy, Bryn Mawr, Pa., *President*; Fred B. Pulling, Atascadero, Calif., *Vice-President*; E. E. Leasure, Manhattan, Kan., *President-Elect*; H. E. Kingman, Jr., Chicago, *Executive Secretary*; Dan J. Anderson, Fort Worth, Texas, *Chairman of the Executive Board*.

---

\$15.00 per Annum Single Copies, \$.75 Prepaid in U.S.  
Canada, \$15.50; Pan American Countries, \$16.50; Foreign, \$17.00

Published semimonthly at 600 S. Michigan Ave., Chicago 5, Ill., by the American Veterinary Medical Association. Second class postage paid at Chicago, Ill., and at additional mailing offices. Contents copyright 1960 by the American Veterinary Medical Association.

CHANGE OF ADDRESS: Send new address (and moving date) 45 days before moving. Include old address as it appeared on previous issues (if possible send label). Do not depend on the post office to forward the JOURNAL.

---



NOW, AN ANTIBACTERIAL  
WITH DISTINCTIVE BENEFITS  
IN VETERINARY MEDICINE

# bactrovet<sup>\*</sup>

(Brand of Sulfadimethoxine)

... COMBATS BOTH GRAM-POSITIVE AND GRAM-NEGATIVE BACTERIA

IS EXCEPTIONALLY SAFE THERAPY

IS AN IDEAL AGENT FOR DISPENSING

IS CLINICALLY EFFECTIVE IN ONCE-A-DAY DOSAGE FOR

pneumonia  
enteritis  
pharyngitis

otitis  
bronchitis  
cystitis

prostatitis  
mastitis  
metritis

cellulitis  
abscesses  
wound infections



PITMAN-MOORE COMPANY DIV. OF ALLIED LABORATORIES, INC., INDIANAPOLIS 6, IND.

Ask your Pitman-Moore Company  
representative for clinical literature or  
write the Professional Service Department



<sup>\*</sup>Pitman-Moore Company's trademark for 2,4-dimethoxy-6-sulfanilamido-1,3-diazine

## Correspondence

March 14, 1960

Sir:

We are currently interested in establishing a colony of cats of either the Siamese or Burmese breed with *osteogenesis imperfecta*. If you have any information leading to the whereabouts of any of these animals, would you please inform us. We will be happy to bear expense for their purchase and transportation to the School of Dentistry, University of Minnesota.

s/ ROBERT J. GORLIN, D.D.S., M.S.  
Professor and Chairman  
Division of Oral Pathology

★ ★ ★

April 7, 1960

Dear Sir:

This letter is in reference to a guest editorial which appeared on page 339 of Vol. 136, No. 7, of the *JOURNAL of the American Veterinary Medical Association*. There are two points in the editorial which I would like to discuss. One deals with the role of the horse in the spread of eastern equine encephalomyelitis (EEE), and the other, with nomenclature of the virus.

It seems strange that we can be so woefully short on information on EEE as the editorial states and yet have sufficient evidence to rule out the horse as a factor in the spread or maintenance of the infection. Actually, there has been relatively little work done on experimental EEE infections in horses and what little has been done indicates that under certain circumstances the horse may indeed play a role in the transmission of the virus (*Am. J. Path.*, 11:847; *Am. J. Hyg.*, 60:237; *Am. J. Trop. Med. and Hyg.*, 5:802).

The duration of viremia in experimentally infected horses parallels that observed in birds (2 to 3 days). Quantitatively, viremia in horses is lower than that seen in birds, although not greatly different from that seen in large wading birds. In the last group of horses inoculated with EEE virus at the Grayson Laboratory, University of Maryland, two thirds attained blood virus levels sufficient to infect *Aedes sollicitans*, a common salt-marsh mosquito which also feeds on man.

It is of further interest that in the case of Venezuelan equine encephalomyelitis (VEE), caused by a virus antigenically related to EEE, viremia in the horse is very high and there is no doubt that the horse is a factor in its spread. Its potential danger, if introduced into the United States, has already been cited in "Foreign Animal Diseases," an official

(Continued on adv. p. 6)

## CONTENTS—Continued

### ITEMS

Adenocarcinomas in Dogs, Caused by Insecticide .....	537
Brucellosis May Cause Heart Damage in Man .....	541
Fistula of the Withers .....	549
Cattle Grub and Bruise Damage To Be Reduced in 1960 .....	554
Transfusion Reaction in Dogs .....	558
Canine Distemper Antibodies in Human Serums .....	558
Aujeszky's Disease in the Dog .....	558
Erysipelas Serum Affects Penicillin ...	561
Effect of Testosterone on Dog Diseases	561
Information Wanted Regarding Certain Eye Changes and Bone Tumors in Beagles .....	564
Value of Concomitant Antibiotic-Steroid Therapy .....	568
June 30 is Deadline for Humane Slaughter .....	570

### from the RESEARCH JOURNAL

Elmeria and Trichostrongylus in Dairy Calves .....	570
Elmeria and Strongyloides in Dairy Calves .....	570
Correction of Cobalt Deficiency in Cattle	570

### NEW BOOKS

Regulatory Veterinary Medicine .....	572
--------------------------------------	-----

### NEWS

Explorer Scouting in Veterinary Medicine Grows .....	573
Constituent Secretaries—Key Men, Series II .....	574
Col. Jennings Receives Honorary Degree from Free University of Berlin	576
Meat Inspection and Poultry Divisions Move to New Quarters .....	576
Dr. H. C. H. Kernkamp to Retire from University of Minnesota in June ...	577
Drs. Gage, Jones, McMichael Become Assistant Directors of AIQ Division	578
First Zoonoses Center on Continent to Be Established .....	579
Among the States and Provinces .....	579
State Board Examinations .....	585
Deaths .....	586
Women's Auxiliary .....	588

### ORGANIZATION SECTION

Getting to the 97th Annual Meeting of the AVMA .....	adv. p. 38
Report, Meeting of AVMA Council on Biological and Therapeutic Agents .....	adv. p. 40
Memorial Funds Established by AVMA Research Fund .....	adv. p. 42
Applications .....	adv. p. 42

### MISCELLANEOUS

Digestion in the Caprine Forestomach .....	adv. p. 10
New Scientific Terms Adopted .....	adv. p. 66



FOR OVER 20 YEARS  
THERE HAS BEEN  
**ONLY ONE** PROVED - ACCEPTED  
CANINE DISTEMPER VACCINE  
OF FERRET ORIGIN

# distemperoid *enabized*

Contact Your Nearest Fromm Distributor  
Serving The Veterinarian With Biologicals Of The Highest Standard

**FROMM**  
LABORATORIES INC., GRAFTON, WIS., U.S.A.





CORRESPONDENCE—continued from adv. p. 4

report of the U. S. Livestock Sanitary Association, 1954.

The name EEE was honestly acquired and was not based on the assumption that the horse played a role in the spread of the disease. It was so named because it was first seen in horses and was characterized by encephalomyelitis. It gained the appellation "eastern" when it was found that the virus causing the disease in the middle Atlantic states differed immunologically from that involved in a similar disease in California.

If there is a fault in the name EEE, it is a fault common to many virus diseases. Since there has been no widely accepted virus classification system in use, virus diseases have been named for such things as the host in which infection was first observed, geographical location of early cases, and clinical-pathological manifestations. In many cases,

notably EEE, infection was later found in a multiplicity of hosts, having a variety of clinical signs, or none at all, and dispersed over a wide geographical area.

If anything, the choice of the term "eastern" was a poor one, since it did not pin-point the location of the first documented cases. If the disease had first been called Maryland, Delaware, or New Jersey equine encephalomyelitis, we could drop the term "equine" today without creating confusion. It would then parallel the other anthropod-borne encephalitides, viz., St. Louis, Japanese, Murray Valley encephalitis. Conceivably, the term eastern encephalitis or eastern viral encephalitis may be confused with the encephalitides occurring in the Far East, viz., Japanese encephalitis and Russian spring-summer encephalitis. The use of "viral" in the proposed term "eastern viral encephalomyelitis" serves no obvious purpose.

Probably the soundest approach to nomenclature of the viral encephalitides is to describe the *disease* as it actually appears in the particular patient, using whatever clinical-pathological terms are applicable. The virus causing the disease could be referred to on the basis of antigenic characteristics. It has been suggested that a binomial system utilizing Casals' grouping of Arboviruses could be used. Under such a scheme, the causative agent of encephalitis

(Continued on adv. p. 10.)

## Liability Insurance for AVMA Members

The policy, which was developed especially for Association members two decades ago, provides expert defense against claims and suits arising out of the care and treatment of animals, and will pay, to the extent of the policy limits, all expenses and damages resulting from unfavorable verdicts.

In this suit-conscious age, such protection is not only wise but, as shown by the claim files, a practical necessity.

The insurance is placed with one of the largest and most reliable underwriters in the country.

Write at once for an application and descriptive folder.

**American Veterinary Medical Association**

600 So. Michigan Ave., Chicago 5, Ill.

# A SIMPLE FORMULA FOR PRECISION ANESTHESIA



When you want ultra-short term anesthesia—with quick recovery—put Pentothal® in the formula. For deep, short-term anesthesia, Combuthal® is tailor made. And when surgical procedures of longer duration are in the picture, intermediate-acting Nembutal® has long been the drug of choice. It's good to know too that each of these drugs is backed by more than 25 years of Abbott pioneering and leadership in the field of intravenous anesthesia.



PORTFOLIO OF OTHER OUTSTANDING ABBOTT VETERINARY PRODUCTS: SELEEN®—the easiest to use, most effective treatment known for seborrheic dermatitis, nonspecific dermatoses, demodectic mange, and common skin complaints. List No. 8679. ABBOTT PARENTERAL SOLUTIONS—a complete line of parenteral solutions for use as adjunctive or supportive therapy. AMINOSOL® for protein support; IONOSOL® D-CM for electrolyte replacement and maintenance; IONOSOL-D to replace duodenal fluids, and IONOSOL-G to replace gastric fluids. List Nos. 4421, 4450, 6403, and 6411. VETROPHIN®—a true pituitary gonadotrophin. Restores normal reproductive function in a natural way. List No. 8663.

NEMBUTAL®—Pentobarbital, Abbott. PENTOTHAL®—Thiopental, Abbott. COMBUTHAL®—Nembutal Sodium—Pentothal Sodium, Abbott. SELEEN®—Selenium Suffide Suspension, Abbott. AMINOSOL®—Protein Fibrin Hydrolysate, Abbott. IONOSOL®—Electrolyte Solution, Abbott. VETROPHIN®—Pituitary Gonadotrophin, Abbott.

000193



# SEBU

**CLEANS  
EARS  
MORE  
EFFECTIVELY**

...ideal new  
cerumenolytic  
agent



Only 1 dropperful of a safe, new drug now offers greater success in ear diagnosis and therapy. Called 'SEBUMSOL,' it provides deep penetration of waxy deposits and thoroughly cleans the ear canal without irritation.

Excessive earwax is not only a hindrance to aural examination but presents a physical barrier to therapeutic agents as well. A cerumen plug can be responsible for otitis externa, itching and pain.

'SEBUMSOL' is a natural product, actually related to components of normal sebum. It is completely miscible with cerumen as well as other oils, fats and waxes of the skin.

Easily applied once or twice daily in each ear, 'SEBUMSOL' penetrates deeply into hair follicles

and cerumenous glands to remove excess or impacted wax. Cleans better because it mixes so freely with sebaceous and cerumenous secretions. Loosens and dissolves hard, deep-seated wax and fatty deposits; floats them to the surface where they can be quickly and easily wiped away.

Once the ear canal is effectively cleaned with 'SEBUMSOL' healing frequently occurs promptly when used in the treatment of mild otitis externa. In the event supplementary therapy is required it can be instituted more effectively because of a clean ear.

Traditional cleansing procedures employ foreign materials that attempt to perform by chemical or mechanical action. 'SEBUMSOL' relies entirely on

# MSOL<sup>TM</sup>

(hexamethyltetracosane, 'PARLAM')



**CLEANS  
EARS  
SAFELY**

... **without  
anesthetics  
or  
instruments**

its natural physical action for its therapeutic activity. Non-irritating, non-allergenic, non-anaphylactic. No residue. No hair discoloration. Completely safe.

#### **INDICATIONS:**

- (1) Removes excess or impacted earwax.
- (2) As a pre-treatment. Removes "cerumen barrier." Enhances effectiveness of any additional therapeutic measures.
- (3) Cleans the ears; facilitates aural examination and diagnosis.
- (4) Relieves otitis externa, itching and pain, due to excessive cerumen.

SOLE CANADIAN DISTRIBUTOR: Veterinary Medical Supply Co. of Canada, 4700 Prince of Wales, Montreal 28, Que.

Complements but does not complicate any additional therapy which may be required.

**SUPPLY:** 'SEBUMSOL' is available in 1 fl. oz. dropper bottles with dispensing label; also pint bottles for hospital use. Low priced for routine use.

*Write for samples and literature.*



*Parlam* CORPORATION

266 South Dean St. Englewood, New Jersey  
"Pioneer in veterinary medicine for target point chemotherapy"

Good Records are  
easy to keep with

## COLWELL'S DAILY LOG



- COMPLETE
- COMPACT
- ECONOMICAL

The DAILY LOG is the easiest to use of any professional record keeping system — no bookkeeping experience necessary — easy to teach a new assistant. Helps you set up orderly routines, avoid costly billing mix-ups and tax troubles, saves you time and money. Designed specifically for physicians — first in the field — preferred by thousands of doctors since 1927.

### SPECIAL INTRODUCTORY OFFER to veterinarians

Colwell's Introductory Offer provides a definite program of money-saving values, service and information on the complete line of Colwell Office Record Supplies and Professional Stationery. By taking advantage of this special offer, substantial savings can be made in organizing the entire business side of your practice on a sound, efficient basis.

#### MAIL THIS COUPON TODAY!



THE COLWELL COMPANY

281 University Ave., Champaign, Illinois

Please send me your Daily Log Introductory Offer Information Kit for veterinarians.

DR. \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_

#### CORRESPONDENCE—continued from adv. p. 6

in a particular animal or man might be given as *Arbovirus marylandi*, or *delawari*, etc.

It is my suggestion, therefore, that the term EEE remain in use for the present, but that serious consideration be given to the future adoption of Casals' system in describing the virus, combined with the use of appropriate clinical-pathological terminology in describing the disease. It is my further suggestion that future research on EEE should include a second look at the horse, as well as extensive studies on other vertebrate hosts.

s/ROBERT J. BYRNE

Associate Professor of Veterinary Science  
University of Maryland  
College Park, Maryland

[Editor's Note: At their annual meeting on Dec. 14-16, 1960, the American Association of Equine Practitioners passed a resolution, one item of which requested the AVMA to consider renaming the disease, "equine encephalomyelitis." The AVMA Executive Board, meeting March 4-5, 1960, referred the matter to the editor-in-chief for appropriate action. He, feeling that an authoritative body should consider the proposed name change, has requested an opinion from the Committee on Nomenclature of the American Association of Veterinary Clinicians.]

### Digestion in the Caprine Forestomach

The extent of digestion in the goat forestomach (rumen, reticulum, and omasum) was studied in 3 goats in Japan. The omasum was transected from the abomasum at their junction and each organ was connected to the exterior by a fistula. The omasal ingesta was recovered through one fistula and, after study, this material was transferred into the abomasum through the other fistula. Absorption from the forestomach ranged from 61.7 to 85.4 per cent of digestible organic matter; from 20.0 to 52.1 per cent of digestible protein; from 65.7 to 96.6 per cent of digestible nitrogen-free extract; and totaled almost 100 per cent of the digestible crude fiber.

Little water seemed to be secreted into or absorbed from the forestomach; the volume increase was approximately equal to the estimated quantity of saliva swallowed. The nitrogen compounds were absorbed from the rumen chiefly as ammonia and urea.—J. Dai. *Sci. (July, 1959): 1187.*

# the simple, direct route to ringworm control **FULVICIN<sup>®</sup>**

griseofulvin

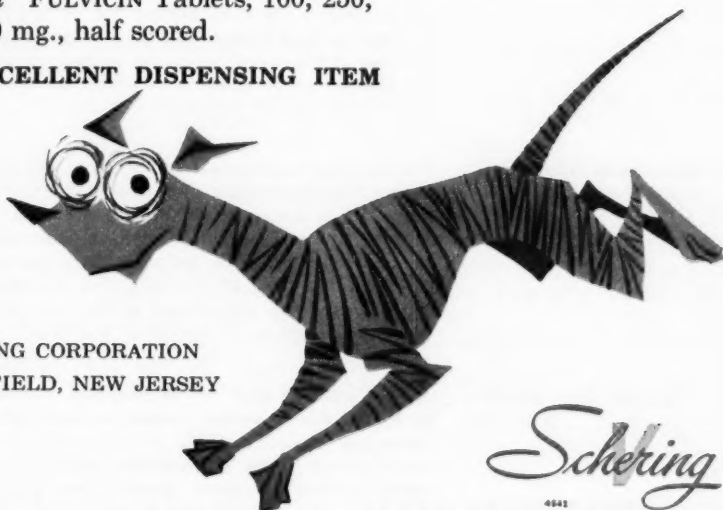
1st oral antifungal antibiotic, simplifies management procedures. The fungistatic action of FULVICIN clears superficial fungous infections *from the inside out* by depositing medication in the newly growing skin, hair and nails.

FULVICIN checks and eliminates common invading fungi (*Microsporum* and *Trichophyton*) of the hair and skin usually in three to four weeks; nail infections take longer.

FULVICIN also appears valuable in some cases of demodectic mange—the dry type—and in refractory ear mite infestations.

*supplied* FULVICIN Tablets, 100, 250, and 500 mg., half scored.

**AN EXCELLENT DISPENSING ITEM**



SCHERING CORPORATION  
BLOOMFIELD, NEW JERSEY



FROM THE AVMA WASHINGTON OFFICE  
J. A. McCallam, VMD  
Brig. Gen. USA (Ret.)

**SUMMARY OF TREASURY  
ALTERNATIVE TO H.R. 10**

The basic deduction allowed under the Treasury proposal is patterned after the H.R. 10 formula—10% of earnings up to \$2,500 per year. But it differs in the following respects: (1) "earned income" is the base, which generally would be less than "self-employment income" provided in H.R. 10; (2) there is no total life-time limitation of \$50,000, as is provided in H.R. 10; and (3) there are no increased contributions and deductions for persons between 50 and 70, as is provided in H.R. 10. If an individual and his family own more than 10% of a business, he may exceed the basic H.R. 10 formula and deduct each year the higher of the following (a) an amount for himself equal to the largest annual contribution vested in any other employee who is neither a close relative nor part owner, or (b) an amount for all owners which is not over 50% of total annual contributions vested in all nonowner employees.

**"Money purchase"  
Pension Plans**

The Treasury proposal requires the establishment of non-discriminatory "money purchase" pension plans. Such a plan may be established for the self-employed alone when he has no other permanent employees. If he has other employees, it may be integrated with social security benefits provided he does not thereby exclude all nonowner employees. While vested rights are generally not required until retirement, they must be granted immediately if the self-employed wants to exceed the 10%-\$2,500 limitation or fund the plan from profits only. "Contributory plans" are allowed if there are nonowner employees under the plan, but nondeductible contributions may not exceed the 10%-\$2,500 formula in any year.

**Withdrawals Before Age 70**

The self-employed would be required to start withdrawals before 70. Presumably there would be an averaging provision for a lump-sum withdrawal, which is the pattern of H.R. 10. The plan would have to be irrevocable, with a tax penalty on withdrawals before normal retirement age (say 60) except in case of disability. The penalty might include an increased tax and denial of the right to participate in a qualified plan for a period of 5 years.

**Includes Owners of More  
Than 10%**

As an "integral part" of its proposal, the Treasury desires to apply the foregoing limitations and safeguards to all owners of more than 10% of a business, whether incorporated or not. After a transition period these rules would cover existing corporate plans. Connected with this, the

*(continued on adv. p. 14)*





## **Doctor! are the cards being stacked against you?**

We Americans are noted for our sense of fair play. Nowhere in the world are doubtful practices frowned on as they are here.

This is why we wonder about the distribution methods of those suppliers of veterinary products that sell for use by laymen. No doubt their sales are higher. But what are they doing to the veterinary profession?

Surely the indiscriminate use of veterinary products by untrained persons can do much to undermine *your* practice and prestige. Could this not eventually do great harm to the livestock industry as well?

We're concerned because we have unalterably cast our lot with you, the graduate veterinarian. Now, we like competition—that's what makes this country great. And we respect an honest difference of opinion. However, we feel this goes further than merely choosing up sides.

We feel there is an important professional issue at stake.

Maybe we're taking this matter of professionalism too seriously, but as one team member to another, we'd like to ask you this question:

**DOCTOR, ARE THE CARDS BEING STACKED AGAINST YOU?**



### **AFFILIATED LABORATORIES CORPORATION**

Grain Belt Supply Co.  
Corn Belt Laboratories, Inc.

The National Laboratories Corp.  
The Gregory Laboratory, Inc.

PRODUCED FOR AND SOLD TO GRADUATE VETERINARIANS ONLY

## WASHINGTON NEWS—Continued

Treasury requests repeal of the present long-term capital gains treatment for lump-sum distributions from qualified plans at death or termination of an employee's services. For this, there would be substituted some type of direct averaging, along lines suggested in H.R. 10. Furthermore, the Treasury asks for re-examination of the present exemption from estate and gift taxes of pension rights attributable to employer contributions under qualified plans.

**Note:** *Treasury has consistently opposed H.R. 10 and similar bills. For going along part way with a self-employed pension plan, it wants to tighten up on all plans. Wants removal of capital gains treatment on lump-sum distributions from pension and profit sharing plans: take away estate and gift exemptions on that portion of pension rights paid by employer contributions. It seems most unfair for Treasury to incorporate latter proposals in new provisions for self-employed. Mr. Keogh stated if Treasury believes changes in present corporate plans should be made then such should be considered separately and not as part of Keogh bill. Committee is expected to work out a compromise.*

### LEGISLATIVE

#### **Narcotics Manufacturing Act Becomes Law**

Narcotics Manufacturing Act of 1960, approved April 22, 1960 is Public Law 86-429. Among reasons listed for enactment (1) to discharge more effectively the international obligations of U.S., (2) to promote public health, safety, and welfare, (3) to regulate interstate and foreign commerce in narcotic drugs, and (4) to safeguard revenue derived from taxation of these drugs, Congress finds it necessary to enact a statute for licensing and controlling the manufacture of all narcotic drugs.

#### **Committee Favors Cooperative Fish and Wildlife Programs**

Senate Interstate Commerce Committee favorably reported with amendments the bill S. 1781, to facilitate cooperation between federal government, colleges and universities, the states and nonprofit organizations for cooperative unit programs of research and education relating to fish and wildlife (*Senate Report No. 1285*)

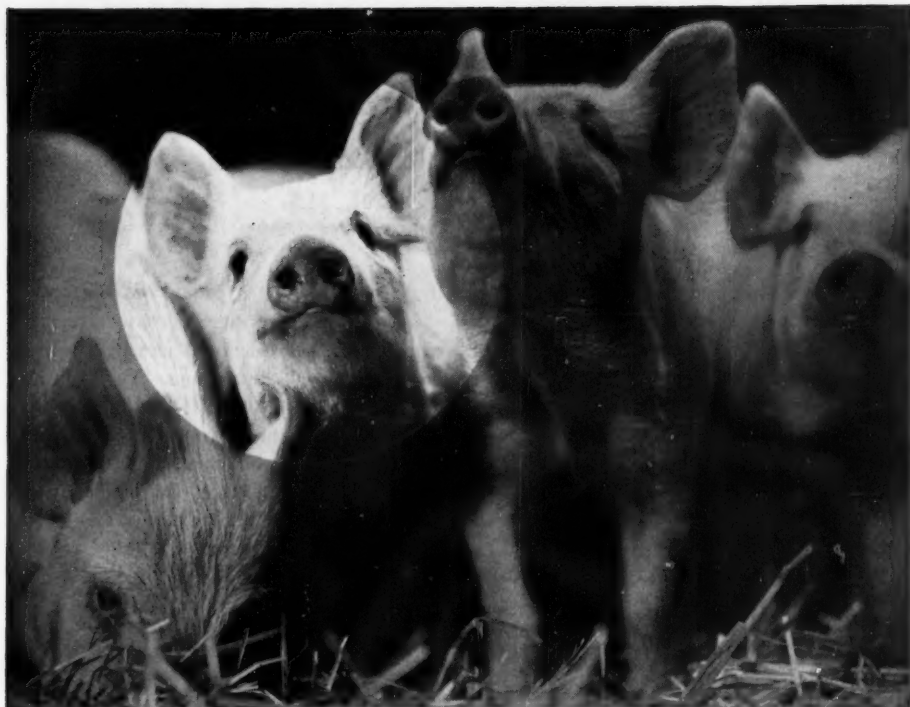
### NEW BILLS

#### **Include Nationals in Scholarships Program**

H.R. 11985—Rep. Brooks (D., La.), would amend National Science Foundation Act of 1950 to make American nationals eligible for scholarships and fellowships authorized by the Act. Amendment would add words "or nationals" after the word "citizen."

#### **Permit \$2,400 Deduction- Free Earnings**

S. 3370, Sen. Yarborough (D., Tex.), would permit individual to earn \$2,400 annually without suffering deductions from social security benefits. Rep. Derwinski (R., Ill.), H.R. 11913, would remove the limitation upon amount of outside income an individual may earn while receiving benefits under the Act.



## Make sure this little pig goes to market!

As more and more farmers turn to the efficiency of confinement raising of swine on concrete or frozen ground, the problem of swine anemia becomes greater and greater. The very method, in a sense, carries its own curse . . . because the pigs no longer wallow in the earth this source of



iron is lost to them. The AO Hb Meter is the only convenient way to accurately diagnose iron deficiency anemia before the acute stage is reached. Early recognition is important as acutely affected pigs often will not

fully recover even though iron is administered. The AO Hb Meter is small enough to fit in your pocket . . . you can use it on the spot, in the field. Results are laboratory accurate and the entire procedure takes less than 3 minutes. The hemoglobin concentration is read directly from a scale on the side of the instrument. Results are shown in grams of hemoglobin per 100 ml. of blood.

A reprint of a professionally written paper covering the problems of swine anemia is yours for the asking. It details a method of sampling, a workable schedule of sampling and how to make a representative selection from a herd. For your copy mail the coupon below.



**American Optical  
Company**

INSTRUMENT DIVISION, BUFFALO 15, NEW YORK

Dept. E 117

- ☐ Please send paper "Hemoglobin Determination in Swine Anemia, a Practical Method".  
☐ Please send complete information on the AO Spencer Hb Meter.

Name

Address

City  Zone  State

IN CANADA write — American Optical Company Canada Ltd., Box 40, Terminal A, Toronto, Ontario

# New 1960 Book!

## *Whitlock — Diagnosis of Veterinary Parasitisms*

By J. H. Whitlock, D.V.M., M.S.

Professor of Veterinary Parasitology, New York State  
Veterinary College, Cornell University, Ithaca, New York

Founded on the best available basic science in the field, this handbook of practical diagnosis utilizes today's essential *global* approach to parasitic identification. The subject matter is limited to helminth and arthropod parasites of the horse, cow, sheep, goat, pig, dog, cat, chicken, turkey, duck, goose and, occasionally, man. Direct quotations from authoritative sources are included wherever possible.

New. 236 pages, 8 1/2" x 11". 368 illustrations or 98 Figures. \$10.00

### New 2nd (1960) Edition *McGrath — Neurologic Examination of the Dog* With Clinicopathologic Observations

By JOHN T. McGRATH, V.M.D.

Professor of Pathology, University of Pennsylvania Veterinary School, Philadelphia  
Step-by-step guidance, with stress on differential diagnosis, makes this only English work of its kind invaluable to every veterinarian. The enlarged new 2nd edition contains new therapeutic principles in the section on neurologic disorders, new clinical cases, and the most recent advances on every subject.

New 2nd Edition. 281 Pages.  
183 Illustrations. \$7.00

### *Smith and Jones — Veterinary Pathology*

By HILTON A. SMITH,  
D.V.M., M.S., Ph.D.

Department of Veterinary Pathology, School of  
Veterinary Medicine, A. & M. College of Texas

and THOMAS C. JONES, B.S., D.V.M.  
Pathologist, Angell Memorial Animal Hospital, Boston

"Perhaps the most nearly complete work on veterinary pathology ever published in a single volume. All domestic animals except birds are represented. Extremely valuable."  
— AMERICAN JOURNAL OF VETERINARY SCIENCE (North Am. Vet., Jan. 1, 1958)

959 pages, 7" x 10". 661 illustrations on 263 figures and 1 color plate. \$17.50

LEA & FEBIGER

Washington Square  
Philadelphia 6, Pa.

Please enter my order and send me: (we pay postage if remittance in full accompanies order)

- ☐ check enclosed. Bill me at ☐ 30, ☐ 60, ☐ 90 days. ☐ charge on your monthly payment plan
- |   |         |
|---|---------|
| <input type="checkbox"/> Whitlock — Diagnosis of Veterinary Parasitisms ..... | \$10.00 |
| <input type="checkbox"/> McGrath — Neurologic Examination of the Dog .....    | 7.00    |
| <input type="checkbox"/> Smith and Jones — Veterinary Pathology .....         | 17.50   |

DR. (print) .....

ADDRESS .....

CITY .....

J.I.A.V.M.A. 6-60

# Liquamycin® Injectable

oxytetracycline solution



The  
Practical  
Solution  
for  
Broad—Fast—Successful  
antibacterial  
therapy

#### **EFFECTIVE—**

The Practical Solution of Liquamycin Injectable provides oxytetracycline—whose broad-spectrum effectiveness has been proven in millions of cases during the past ten years.

#### **CONVENIENT—**

The Practical Solution of Liquamycin Injectable is a ready-to-use antibiotic for intravenous, subcutaneous, and intramuscular administration.

#### **ECONOMICAL—**

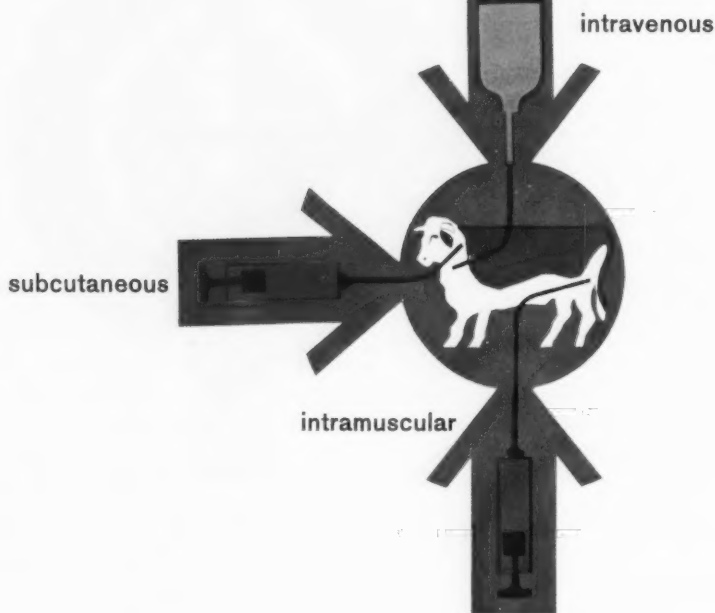
The Practical Solution of Liquamycin Injectable offers low cost individual animal treatment due to the broad-spectrum effectiveness of oxytetracycline.

(See the following page for detailed information on a special limited **get-acquainted** offer of Liquamycin Injectable.)



# Liquamycin® Injectable

oxytetracycline solution



**GET-ACQUAINTED OFFER\***—Discover the effectiveness, convenience and economy of Liquamycin Injectable during a special get-acquainted offer.

For a limited time the practical solution will be available in a combination package. A dispensing 50 cc. vial will be provided at no charge with each purchase of a 500 cc. vial of Liquamycin Injectable.

\*This offer will be available only during a limited introductory period.

**PACKAGING**—amber vials of 50 cc. containing 2.5 Gm. of oxytetracycline hydrochloride.  
—amber bottles of 500 cc. containing 25 Gm. of oxytetracycline hydrochloride.

**ADMINISTRATION AND DOSAGE**—Liquamycin Injectable may be administered intravenously, subcutaneously, and intramuscularly.

1 to 2 mg. per pound of body weight is usually sufficient for satisfactory therapy in cattle, sheep and swine. Dosage may be increased up to 5 mg. per pound, in severely affected or young animals. See package insert for more detailed instructions.



Science for the world's well-being™

Department of Veterinary Medicine, Chas. Pfizer & Co., Inc., New York, N. Y.

For Doctors of Veterinary Medicine -

New Convenience in the Diagnosis and Treatment  
of Ocular Disorders among Animals

- from Alcon Laboratories, Inc.

To assist you in the routine and emergency treatment of a wide range of ocular disorders, we have introduced the V-E-T Set (Veterinary Eye Treatment Set), a boxed assortment of eight Alcon Sterile Ophthalmic preparations particularly suited for office use:

FLUORESCEIN SODIUM 2% (diagnostic stain)  
ISOPTO®ATROPINE 1% (mydriatic)  
ISOPTO®CARBACHOL 1.5% (miotic, for immediate treatment of glaucoma)  
ISOPTO®CETAMIDE (sulfacetamide solution)  
ISOPTO®FRIN (phenylephrine and methylcellulose, a lubricant and tear-replacement)  
ISOPTO®P-H-N 1.5% (polymyxin, 1.5% hydrocortisone, and neomycin)  
TETRACAINE HCl 0.5% (topical anesthetic)  
ZINC FRIN (zinc sulfate and phenylephrine, a mild astringent)

All of the items are in Alcon's Drop-Tainer® plastic packaging, which is non-spillable, non-breakable, and helps protect the contents against contamination during use. Included with the Set is a treatment table tray which holds the Drop-Tainers. The complete Set costs only \$9.32.

Eye problems for which items in the V-E-T Set are indicated are discussed in Canine Ophthalmology by Russell J. Beamer, D.V.M. If you have not yet obtained a copy of this publication, drop us a note and we will send you one free of charge.

Alcon preparations, including the V-E-T Set, are immediately available from --

ALBANY SERUM COMPANY, Albany, Georgia  
BARBER VETERINARY SUPPLY, Richmond, Virginia  
CALIFORNIA MEDICAL SUPPLY, Pasadena, California  
CENTRAL CITY CHEMICAL, San Francisco, California  
EMPIRE VETERINARY SUPPLY, Warsaw, New York  
FLORIDA VETERINARY SUPPLY, Tampa, Florida  
MILLER VETERINARY SUPPLY, Fort Worth, Texas  
NORTHWEST VETERINARY SUPPLY, Oregon City, Oregon  
PROFESSIONAL VETERINARY SERVICE, Miami, Florida  
ROCKY MOUNTAIN VETERINARY SUPPLY, Denver, Colorado  
SHARPE & VEJAR COMPANY, Los Angeles, California  
STANDARD VETERINARY PRODUCTS, INC., Palisades Park, New Jersey  
JACK A. WEBSTER, Wakefield, Massachusetts

Or write directly to Alcon Laboratories, Inc., Veterinary Department, P.O. Box 1959, Fort Worth 1, Texas.

**Alcon**

A COMPLETE LINE OF STERILE OPHTHALMIC PREPARATIONS  
FOR THE DOCTOR OF VETERINARY MEDICINE

AV-6

## ANTI- INFLAMMATORY THERAPY

by  
intramuscular  
injection



## ENZYMATIC DEBRIDEMENT

*for topical use*



### KYMAR®

*Chymotrypsin Preparation*

Kymar exerts a powerful anti-inflammatory action to promote faster healing. Absorption of edema and blood extravasates is accelerated with relief of pain and restoration of impaired local circulation. Indicated wherever inflammatory tissue reactions retard healing as in: lacerations, contusions, fractures; surgical trauma such as mammary tumor excision, open reduction of fractures, abdominal surgery; cellulitis; abscesses; inflammatory eye conditions. Supplied in vials of 5 cc.

### TRYPTAR®-VET

*Crystalline Trypsin*

Tryptar-Vet provides a thorough wound cleansing action. Necrotic tissue, exudates, crusts and tissue debris are removed leaving a clean wound surface ready for healing. Indicated in treatment of ulcerations, soft tissue abscesses, bovine foot rot, fistulous withers, equine foot canker, purulent and gangrenous mastitis, suppurative otitis, infected compound fractures, infected amputation stumps. Supplied as a dry powder in three convenient potencies. Vials of 50,000 units, 125,000 units, 250,000 units.

© 1960, A. P. Co.

SOLD ONLY TO LICENSED VETERINARIANS



VETERINARY DEPARTMENT  
ARMOUR PHARMACEUTICAL COMPANY  
KANKAKEE, ILLINOIS

# SUPERIOR ACTH PREPARATIONS

SOLD ONLY TO LICENSED VETERINARIANS

for  
small animal  
practice

## ADRENOMONE®

*Highly Purified ACTH in Gel*

The therapeutic activity of the ACTH is greatly prolonged by the addition of gelatin. Adrenomone is the primary treatment for shock, dermatoses and allergic conditions in cats. Fine results may be expected in the treatment of dogs suffering from shock, arthritis, rheumatism, allergies and neuromuscular disorders.

Supplied in 5 cc. vials...40 U.S.P. Units per cc.  
two strengths: 5 cc. vials...80 U.S.P. Units per cc.  
10 cc. vials...80 U.S.P. Units per cc.



## D-40

*ACTH in 5% Glucose*

After intravenous glucose has provided immediately available energy, ACTH maintains an adequate glucose level for many hours. D-40 combats shock, stress and circulatory embarrassment, maintaining blood volume and restoring electrolyte balance. Supplied in 250 cc. bottles of solution A (5% glucose in saline) with 5 cc. vial of solution B (40 U.S.P. Units ACTH).



## ACB<sub>12</sub>

*ACTH with Vitamin B<sub>12</sub>*

ACB<sub>12</sub> is particularly useful for treatment of canine distemper and complications. It controls inflammatory reactions, nervous symptoms, certain convulsive states; improves appetite and sense of well-being; depresses fever and relieves pain. Supplied in 5 cc. vials. Each cc. contains 30 U.S.P. Units ACTH and 1000 mcg. Vitamin B<sub>12</sub>.



© 1969, A. P. Co.

VETERINARY DEPARTMENT  
ARMOUR PHARMACEUTICAL COMPANY  
KANKAKEE, ILLINOIS



# How to Send Your Baby to College on \$9<sup>50</sup> a Week



A good college education today costs as much as \$65 a week. But, the same education can be bought with much less financial strain if you start now, putting \$9.50 a week into U. S. Savings Bonds. At college age there will be more than \$11,000—and over \$2,750 of it will come entirely from interest. That's like getting a whole year of college free.

## HERE'S WHY U. S. SAVINGS BONDS ARE SUCH A GOOD WAY TO SAVE

- You can save automatically with the

Payroll Savings Plan. • You now earn 3¾% interest at maturity. • You invest without risk under a U. S. Government guarantee. • Your money can't be lost or stolen. • You can get your money, with interest, any time you want it. • You save more than money—you're helping your Government pay for peace. • Buy Bonds where you work or bank.

NOW every Savings Bond you own—old or new—earns ½% more than ever before.

You save more than money with U. S. Savings Bonds

*The U. S. Government does not pay for this advertising. The Treasury Department thanks The Advertising Council and this magazine for their patriotic donation.*

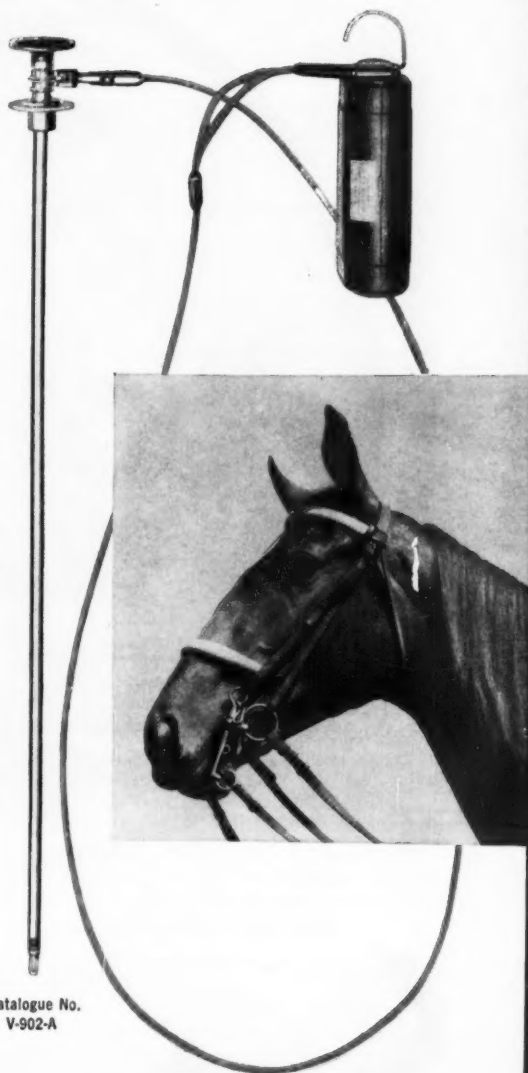
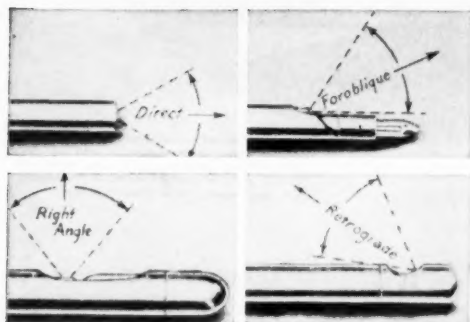




# For VISUAL EXAMINATION, TREATMENT and OPERATIVE PROCEDURES in animal body cavities

Right angle vision for the examination of the upper respiratory tract of large animals is provided by the specially designed ACMI endoscope shown here. It is .390" in diameter and 50 cm. long. Illumination is supplied by a light conducting cord and a 4-cell battery box. A walnut case protects the instrument when not in use. Endoscopes are also available for the examination of body cavities in small animals.

Other high quality ACMI endoscopes are provided with deflectors to permit catheterization or accommodate forceps for taking biopsy specimens under visualization, and in 4 angles of vision: direct, foroblique, right angle and retrospective. An endoscope having a 6 Fr. diameter can be made in lengths from 3" up to 6"; larger diameters up to 50 Fr. can be made up to 36" or longer.



Catalogue No.  
V-902-A

**Equipment can be specially designed to meet any requirement. Write for further information.**



***American Cystoscope Makers, Inc.***

8 PELHAM PARKWAY, PELHAM MANOR (PELHAM), NEW YORK

# Panolog

**OINTMENT  
VETERINARY**

Squibb Triamcinolone Acetonide, Thiostrepton,  
Neomycin and Nystatin in Plastibase



Panolog Ointment is indicated both in the treatment of many dermatologic as well as non-dermatologic conditions, including acute and chronic otitis of varied etiologies, interdigital cysts, and recurrent anal gland infections.



*Available in 7.5 cc. tubes with elongated tip,  
packaged in sealed cartons, each cc. providing:*

triamcinolone acetonide .....	1.0 mg.
thiostrepton .....	2,500 units
neomycin (as the sulfate) .....	2.5 mg.
nystatin.....	100,000 units
in a non-irritating protective vehicle, Plastibase® (Squibb Oleaginous Ointment Base).	

**SOLD ONLY TO VETERINARIANS.**

# ANTI-INFLAMMATORY • ANTIPRURITIC ANTIBACTERIAL • ANTIFUNGAL

*the only veterinary topical ointment to give*

## **4** Basic Therapeutic Effects in One Preparation

How often you have wished for a dependable, easy to use, inexpensive therapeutic agent for dogs or cats that would combine anti-inflammatory-antipruritic action and treat bacterial and fungal infection.

Panolog Ointment is the only topical veterinary preparation to give you all of these therapeutic advantages:



- 1 Panolog contains triamcinolone acetonide to give rapid, potent, topical corticosteroid benefits without systemic reactions. In laboratory animals triamcinolone acetonide is 40 times more potent than cortisone acetate; 10 times more potent than prednisolone.
- 2 Panolog contains thiostrepton to supply a high order of activity against gram-positive organisms, including many which are resistant to other agents.
- 3 Panolog contains neomycin to provide a wide spectrum of potent antimicrobial action against gram-positive and gram-negative organisms.  
(Together these two antibiotics offer comprehensive therapy against those organisms responsible for most superficial bacterial infections.)
- 4 Panolog contains nystatin, a safe antifungal antibiotic—the medication of choice for cutaneous fungal infections in animals, particularly those caused by *Monilia* (*Candida albicans*).

Panolog has a wide range of applications—dermatoses and non-dermatologic conditions. It is well tolerated, well suited in therapy of dry or exudative lesions. Panolog works often when other topical steroid/antibiotic/antifungal preparations have failed.

Order from your favorite Veterinary Supply House or write for further information:

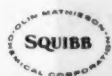
**SQUIBB, Veterinary Department,**  
745 Fifth Avenue, New York 22, N. Y.

"PLASTIBASE"® and "PANOLOG" are Squibb trademarks

© OLIN MATHIESON CHEMICAL CORPORATION, 1960

# SQUIBB

A NAME YOU CAN TRUST

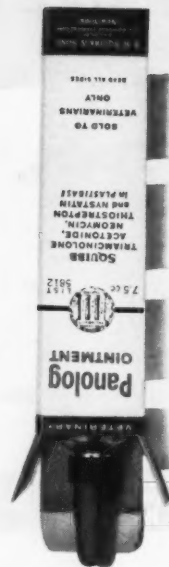


*See following page for listing of PANOLOG distributors.* ▶

You can obtain  
**Panolog**  
OINTMENT VETERINARY

from any of the veterinary supply

houses listed below or from your  
nearest Squibb branch.



**ALABAMA**

Shoats White, Veterinary Supply Co.  
517 E. Tennessee Street  
Florence, Alabama

**ARIZONA**

Arizona Veterinary Supply, Inc.  
19 South Drew Street  
Mesa, Arizona

**ARKANSAS**

State Veterinary Supply  
906 Broadway  
Little Rock, Arkansas

**CALIFORNIA**

H. C. Burns Co., Inc.  
2669 Randolph Street  
Huntington Park, California  
W. C. Burns Co., Inc.  
1122 East 8th Street  
Oakland 8, California  
California Medical Supply Co.  
1312 North Fair Oaks Avenue  
Pasadena, California  
California Veterinary Supply Co.  
1315 North Highland Avenue  
Los Angeles 28, California  
Calvesco  
2046 Glendale Avenue  
Modesto, California  
Central City Chemical Co., Consolidated  
715 - 2 Street  
San Francisco, California  
Sharpe & Vejar Co.  
11039 W. Pico Blvd.  
Los Angeles 48, California  
United Veterinary Corporation  
1230 - 7 Street  
Modesto, California  
Valley Veterinary Supply Co.  
5149 Stromm  
North Hollywood, California

**COLORADO**

Rocky Mountain Veterinary Supply Co.  
4470 Garfield Street  
Denver 16, Colorado

**DISTRICT OF COLUMBIA**

District Veterinary Products Co.  
60 "D" Street, North West  
Washington 1, D. C.

**FLORIDA**

Paul Dant & Company, Inc.  
Veterinary Branch Division  
525 E. 9th Street  
Mialeah, Florida  
Walter Harrison Veterinary Supply Co.  
3768 Beach Blvd.  
Jacksonville, Florida

**GEORGIA**

Albany Serum Co.  
920 Front Street  
Albany, Georgia

L. A. Mosher, Inc.  
268 Spring Street, N.W.  
Atlanta, Georgia  
Southern Veterinary Supply Inc.  
152 Alexander St., N.W.  
Atlanta, Georgia

**IDAH0**

M. C. Burns Company, Inc.  
4129 Chinden Blvd.  
Boise, Idaho  
Twin Falls Veterinary Hospital  
and Supply Co.  
260 Second Avenue So.  
Twin Falls, Idaho

**ILLINOIS**

Chicago Veterinary Supply, Inc.  
P.O. Box 729  
Springfield, Illinois  
Holmes Serum Company  
Swingline Veterinary Supply Co.  
1321 S. Demeter Avenue  
Freeport, Illinois

**INDIANA**

W. A. Butler Co.  
1359-61 Shelby  
Indianapolis, Indiana

**IOWA**

Central Veterinary Supply Co.  
1116 West Grand Avenue  
Des Moines, Iowa  
Midwest Supply Co.  
307 - 2nd Street, S.E.  
Cedar Rapids, Iowa  
Sparks Professional Veterinary  
Supply Co.  
4333 Park Avenue  
Des Moines, Iowa

**KANSAS**

Kansas Veterinary Supply Inc.  
Box 113  
Kingman, Kansas  
Missouri Valley Serum Co.  
50 N. 2 Street  
Kansas City, Kansas  
Southwestern Serum Co.  
821 East 21 Street  
Wichita, Kansas  
Wichita Veterinary Supply  
1921 E. Douglas  
Wichita, Kansas

**KENTUCKY**

Blue Cross Supply Co.  
1091 W. High Street  
Lexington, Kentucky

**MARYLAND**

A. J. Buck & Sons  
1515 E. North Avenue  
Baltimore 13, Maryland

**MASSACHUSETTS**

Central Surgical Supply  
35 Main Street  
Fitchburg, Mass.  
Jack Webster, Jr.  
151 Foundry Street  
Wakefield, Mass.

**MICHIGAN**

Detroit Veterinary Supply Co.  
1792-08 Wabash Avenue  
Detroit 32, Michigan  
Velpo Distributors, Inc.  
952 Washington  
Holland, Michigan

**MINNESOTA**

Farmers' Veterinary Supply Co.  
1775 University Avenue  
St. Paul, Minn.  
Hallquist Veterinary Sales  
615 North Armstrong  
Litchfield, Minnesota

**MISSISSIPPI**

Charles Home Veterinary Supply Co.  
604 S. Main Street  
Newton, Miss.

**MISSOURI**

Edwards Veterinary Supply Co.  
2506 Holmes Street  
Kansas City, Missouri  
Edwards Veterinary Supply Co.  
7628 Florissant Road  
St. Louis 21, Missouri  
G. & G Veterinary Supply Co.  
711 West Main Street  
Sedalia, Missouri  
Holmes Serum Co., Inc.  
5914 Leona Street  
St. Louis 16, Missouri  
Research Laboratories, Inc.  
743 South Fourth Street  
St. Joseph, Missouri  
Ru-Vita Corporation  
1613 1/2 Genesee  
Kansas City, Missouri  
Trimble Manor Veterinary Supply  
Highway 169  
Trionite, Missouri

**MONTANA**

Mountain Veterinary Supply  
Route #3  
Missoula, Montana

**NEBRASKA**

Blue Cross Serum Co.  
P.O. Box 543  
Superior, Nebraska

Grain Belt Supply Co.  
4901 S. 33 Street  
Omaha, Nebraska

**NEW MEXICO**

The Great Western Anchor  
Serum Co. of N.M.  
4028 Anderson S.E.  
Albuquerque, New Mexico

**NEW YORK**

Gertrude DeVine Veterinary Supplies  
Box 115  
Goshen, New York  
Empire Veterinary Supply, Inc.  
210 N. Main Street  
Warsaw, New York  
Ethical Veterinary Supply Co.  
34-28 31 Street  
Long Island City, New York  
Lawler's Veterinary Supply Co.  
269 State Street  
Carthage, New York  
Vetomart Co.  
101 Larned Street  
Syracuse, New York

**NORTH CAROLINA**

Carolina Veterinary Supply Co.  
1029 S. Cedar  
Charlotte, N. C.

**OHIO**

Amco Drug Products  
6124 Barton Road  
North Olmsted, Ohio  
W. A. Butler Co.  
1493 N. High Street  
Columbus, Ohio  
Columbus Serum Co., Inc.  
2025 S. High Street  
Columbus 7, Ohio  
P. T. Veterinary Supply Co.  
13129 Spring Grove Avenue  
Cincinnati, Ohio  
Zehr & Company  
Pettisville, Ohio

**OKLAHOMA**

Barber & Cochran Veterinary  
Supply Co.  
1207 So. Agney  
Oklahoma City, Oklahoma

**OREGON**

H. C. Burns Co., Inc.  
1030 S.W. 3 Avenue  
Portland 4, Oregon  
Northwest Veterinary Supply Co.  
1415 - 7 Street  
Oregon City, Oregon  
Portland Veterinary Supply Co.  
809 S.E. Powell Blvd.  
Portland 4, Oregon

**PENNSYLVANIA**

American Veterinary Supply Co.  
3024 W. 26 Street  
Erie, Pennsylvania  
Frank E. Lentz Co.  
230 S. 40th Street  
Philadelphia 4, Pa.  
Pennsylvania Veterinary Supply Co.  
1833 Penn Street  
Harrisburg, Pa.

**SOUTH CAROLINA**

Boyd Veterinary Supply  
140 State Street  
West Columbia, S. C.  
Merritt Veterinary Supply  
P.O. Box 188  
Sumter, South Carolina

**SOUTH DAKOTA**

Nelson Laboratories  
404 E. 12 Street  
Sioux Falls, S. D.  
Vita-Zest Corporation  
Wassington Springs, S. D.

**TEXAS**

Miller Veterinary Supply Co.  
Box 470  
Ft. Worth 1, Texas

**UTAH**

Manciner Veterinary Supply Co.  
267 26th Street  
Ogden, Utah

**VIRGINIA**

Barber Veterinary Supply Co., Inc.  
824 W. Broad Street  
Richmond 7, Virginia

**WASHINGTON**

Cummings Medical Supply Co.  
1316 1/2 N. 105 Street  
Seattle, Washington  
Northwest Veterinary Supply Co.  
2227 - 4 Avenue, So.  
Seattle, Washington  
Pacific Coast Medical Supply Co.  
422 E. Denny Way  
Seattle, Washington

**WISCONSIN**

D.V.M. Inc.  
Mazomanie, Wisconsin  
Wisconsin Biological Laboratories  
1019 Williamson Street  
Madison, Wisconsin

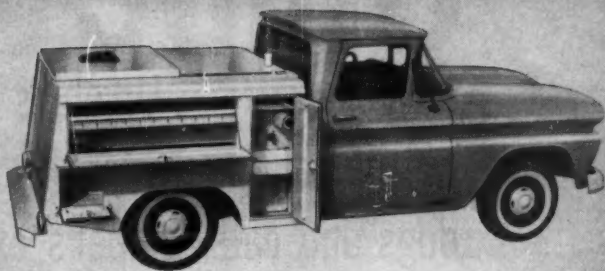
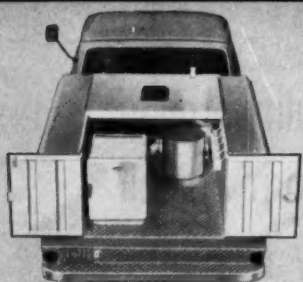
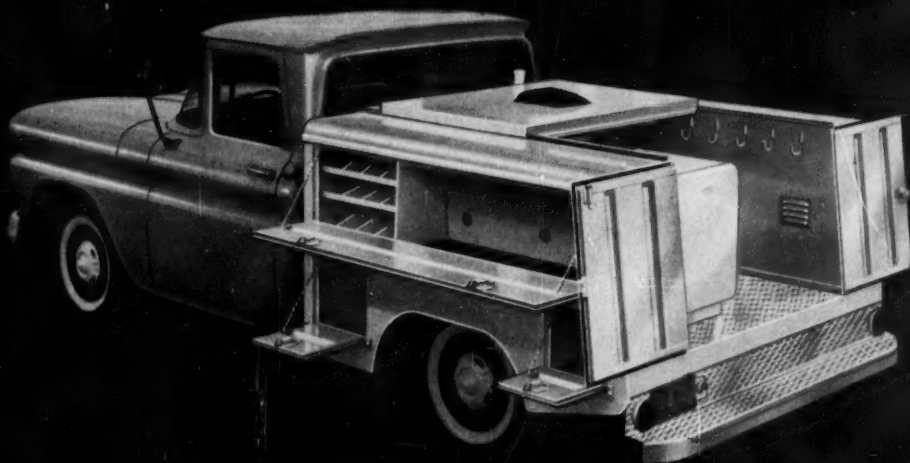
**HAWAII**

Theo. H. Davies & Co., Ltd.  
841 Bishop Street  
Honolulu, Hawaii

**SQUIBB** A NAME YOU CAN TRUST

**Service-Master**  
VETERINARIANS SERVICE BODY

carries a complete  
laboratory and office  
to the patient



- Heated, lighted compartments for drugs, instruments and supplies
- Enamelled steel sink with hot and cold running water and detachable hose

- Silent, efficient L-P gas refrigerator for storage of perishables
- Dustproof, weatherproof, key-locking compartment doors and cargo area roof

**Doctor:** Service-Master on a ½-ton chassis provides you with a matchless combination that saves time and effort and reduces transportation costs on every call. There's abundant storage space for everything you'll need . . . arranged in orderly fashion, ready for instant use in the field. And, higher road clearance of the truck enables you to take your complete laboratory over roads and terrain which would be impassable with a passenger car.

In addition to weathertight, pilfer-proof compartments and cargo area, the Service-Master Veterinarians Body provides built-in sink with quick-coupling hose — water heater — circulating hot air system — refrigerator — fresh water tank — L-P gas system and tank storage — interior lights — bins and shelves.

Every detail, every feature of this specially-equipped unit is designed to assist you in the field. Standard size fits any ½ ton chassis, old or new. Models can also be furnished for ¾, 1 and 1½ ton chassis. For completeness, for the best time-saving design and equipment, for the finest quality construction and durability you're way ahead with Service-Master. Compare and you'll see why.

*Descriptive literature, with price information and the name of your nearest distributor, is yours for the asking.*

**McCABE-POWERS BODY COMPANY**

5900 NORTH BROADWAY ST. LOUIS 15, MISSOURI  
Plants and offices in Hazelwood, Mo., Berkeley and Los Angeles, Calif.  
Portland, Oregon.



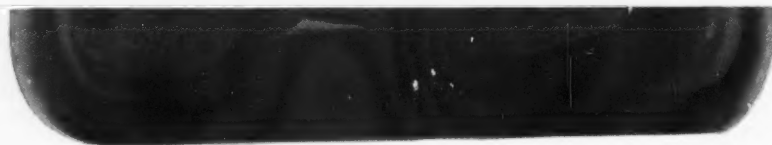


# Unipet<sup>\*</sup> Upjohn

\*Trademark

Upjohn's palatability-proven nutritional supplement in tablet form for all dogs and cats. Unipet's extremely palatable formula is complete and sufficient, and is produced under the most exacting standards of pharmaceutical manufacturing by one of the country's foremost vitamin producers.

THE UPJOHN COMPANY • VETERINARY DIVISION • KALAMAZOO, MICHIGAN





### *ultra short-acting anesthetic*

Acceptance of BREVANE has been excellent. Practitioners have found that it is as safe as a barbiturate can be; that it provides 5 to 15 minutes of surgical relaxation; that uneventful recovery follows in about 30 minutes.

BREVANE offers many "fringe benefits." It safely obliterates the corneal reflex, facilitating ocular surgery, examination, and removal of foreign objects. Unlike other barbiturates, BREVANE will not cause a 2 or 3 day depression in older dogs.

For small-animal operations of brief duration, try BREVANE. It's available in 500 mg. vials at all CS distribution points.



**CORN STATES LABORATORIES, INC.**

Omaha, Nebraska

SUBSIDIARY OF ELI LILLY AND COMPANY

# in feed **Terramix® A-B-D-25**

oxytetracycline with vitamins



## NEW DISPENSING PACKAGE

This new 1 lb. package of Terramix A-B-D-25 (with convenient tear-off label) simplifies your dispensing of this broad-spectrum antibiotic.

*broad-spectrum antibiotic therapy  
PLUS four essential vitamins*

*each lb. contains:*  
25 Gm. oxytetracycline HCl  
activity  
2,000,000 units vitamin A  
200,000 units vitamin D<sub>3</sub>  
4 mg. vitamin B<sub>12</sub>  
with expeller soybean  
oil meal as the diluent.



Also available in 5 lb. canisters.



**Sold to Veterinarians Only**

Department of Veterinary Medicine, Chas. Pfizer & Co., Inc., New York, N. Y.

**in water**

# **Cosa-Terramycin®** FORTIFIED SOLUBLE POWDER

oxytetracycline with glucosamine and vitamins



## NEW DISPENSING PACKAGE

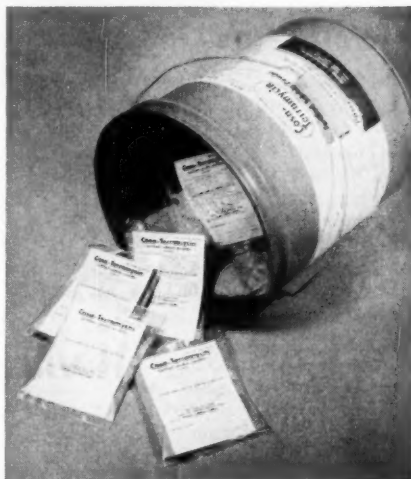
Each special clear envelope contains 6.4 oz. of Cosa-Terramycin Fortified Soluble Powder (10 Gm. oxytetracycline HCl activity). A tear-off dispensing label is also attached.

*broad-spectrum antibiotic with glucosamine PLUS eight vitamins*

*each lb. contains:*

25 Gm. oxytetracycline HCl  
500,000 I.U. vitamin A  
100,000 I.U. vitamin D<sub>3</sub>  
200 mg. vitamin K  
150 units vitamin E  
2,000 mcg. vitamin B<sub>12</sub>  
800 mg. riboflavin  
4,000 mg. niacinamide  
1,500 mg. pantothenic acid

**Sold to Veterinarians Only**



Available in ¼ and ½ lb. bottles and 5 lb. canisters

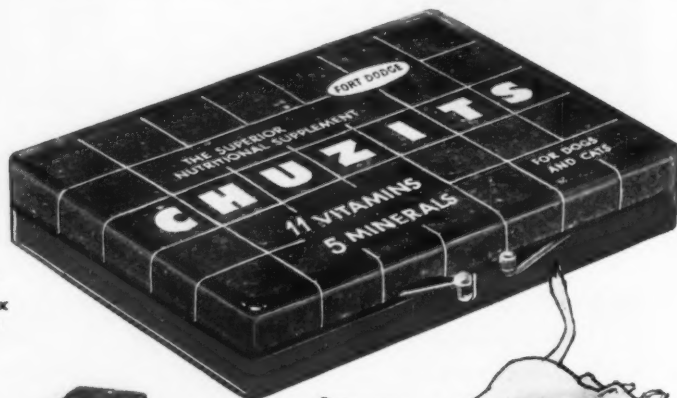


**Pfizer** Science for the world's well-being™

# New!

# CHUZITS<sup>®</sup>

a superior nutritional supplement



"... it's the slickest  
little plastic box  
I ever did see"



*for cats, too*

## Compare the formula

Each cube contains:

Vitamin A.....	2000 units
Vitamin D.....	200 units
Vitamin E.....	1.0 units
Thiamine.....	1.0 mg.
Riboflavin.....	1.0 mg.
Pyridoxine.....	200 mcg.
Nicotinamide.....	15.0 mg.
Pantothenic Acid.....	500 mcg.
Choline.....	6.8 mg.
Folic Acid.....	100 mcg.
Vitamin B <sub>12</sub> .....	0.2 mcg.
Calcium.....	130 mg.
Phosphorus.....	64 mg.
Iron.....	1.0 mg.
Copper.....	54 mcg.
Cobalt.....	0.14 mcg.
Protein (amino acids).....	1370 mg.
Methionine.....	25 mg.

Dogs and Cats: 1 daily  
or as recommended

<sup>®</sup>TRADEMARK



## 11 vitamins—5 minerals plus amino acids

In new CHUZITS, 18 nutritional aids have been compressed into 1/2-inch 'cubes.' Each cube supplies the vitamins, minerals and other factors which dogs and cats require. Formula meets latest potency standards of the National Research Council.

Convenient-to-give CHUZITS help produce good coats, clear eyes, strong bodies. Especially valuable for puppies, bred females, and convalescents. Supplied: Packages of 12 boxes, each containing 35 cubes.

FORT DODGE LABORATORIES, FORT DODGE, IOWA



Vol. 136

No. 11

June 1, 1960

Journal

OF THE  
AMERICAN VETERINARY  
MEDICAL ASSOCIATION

*Problems Associated with the Use of the*

## Newer Insecticides

*for Livestock Pests*

R. D. RADELEFF, D.V.M.

THE TERM, "newer insecticides," brings to most minds the systemically active compounds now appearing on the market.

Compounds that are popularly called "systemic parasiticides" are those capable of being absorbed from internal or external body surfaces or from subcutaneous or muscle tissue, being transported by the blood vascular system to remote tissues, and there destroying parasites.

During 1957 and 1958, 2 such materials reached commercial production and general application in the United States. These were 0,0-dimethyl 0-(2,4,5-trichlorophenyl) phosphorothioate (ronnel\*) and 0-(3-chloro-4-methylumbelliferone) 0,0-diethyl phosphorothioate (Bayer 21/199\*\*).

Ronnel shows excellent ability to control infestation with first-instar larvae of the cattle grubs *Hypoderma lineatum* and *Hypoderma bovis* when administered to cattle orally as a bolus at the rate of 100 mg./kg.

From the Animal Disease and Parasite Research Division, Agricultural Research Service, USDA, Kerrville, Texas.

Presented before the Section on Public Health and Regulatory Veterinary Medicine, Ninety-Sixth Annual Meeting, AVMA, Kansas City, Mo., Aug. 24-27, 1959.

\*Ronnel is produced by the Dow Chemical Co., Midland, Mich., and marketed under the names Trolene (oral use) and Korlan (spray use).

\*\*Bayer 21/199 is marketed as Co-Ral by the Chemagro Corp., Kansas City, Mo.

of body weight.<sup>5,17,24,36</sup> Ronnel will destroy several other ectoparasites when so administered, but the action is so fleeting that it offers no great advantage over more commonly available compounds. A technical grade of ronnel, applied as a spray, is currently recommended as a topical parasiticide to control hornflies, lice, screwworms, fleeceworms,<sup>22</sup> and sheep keds. Ronnel also has been used against demodectic mange in dogs<sup>38</sup> and *Dermatobia hominis* infestation in cattle.<sup>11</sup>

Bayer 21/199 controls infestation with first-instar cattle grubs when applied to cattle as a spray containing 0.5 per cent of the active chemical.<sup>5,12</sup> Concentrations ranging from 0.25 to 0.75 per cent have been studied, but the 0.5 per cent appears to be the preferred concentration, weighing toxicity to the host against effective concentration. When so applied, it kills ectoparasites, such as screwworms, hornflies, lice, and ticks.

Both ronnel and Bayer 21/199 show anthelmintic activity<sup>14,15,39</sup> when administered orally. The former appears to have the relatively narrow spectrum and low efficacy, and the latter to have a relatively broad spectrum and high efficacy. The dosage of Bayer 21/199 required for anthelmintic activity is close to the toxic

dose, making it hazardous for general use in this manner.

Three other compounds have shown some promise. These are 0,0-dimethyl s-(n-methyl carbomoylmethyl) phosphoro-dithioate (Dimethoate<sup>†</sup>), 0-(4-tert-butyl-2-chlorophenyl)0-methyl methyl phosphoramidothioate (Dowco 109<sup>‡</sup>) and 4-tertiary butyl-2-chlorophenyl methyl methyl phosphoramidate (Ruelene<sup>‡</sup>). These have not been marketed for use with animals at this time. Dimethoate and Ruelene are the most likely to appear on future markets.

These successful developments of systemically active compounds followed a long series of investigations.<sup>2-4,18-21,23,25-28,40</sup> Each of these compounds was limited by safety, residues in meat or milk, or other considerations. The newer materials are not completely free of these problems.

#### General Problems

The problems of this discussion apply both to the systemic action and the more prosaic actions of modern insecticides.

*The Ideal Parasiticide.*—An ideal parasiticide would rid the host of all its parasite burden at a single administration. It would be safe for all species of animals and leave no residue in the tissues of the host to create food hazards. Five years ago, such a material was a dream. Today, we are close to finding such a product.

*Residues in Meat, Milk, and Animal Products.*—Under the federal Food, Drug, and Cosmetic Act, stringent tolerances are placed upon residues of chemicals in food. For milk, the tolerance is zero. No chemical, regardless of its source, may be added to milk. For meat, various tolerances, according to the chemical, have been established.

The presence of small residues in animal tissues and milk following treatment has been one of the most provoking problems of modern insecticides. Tolerances were set for some materials, but only after extensive research demonstrated that such residues were not a hazard to the consumer. Many millions of dollars of industrial, state, and federal funds were expended in determining

the extent of residues in various animals under a variety of conditions of use.

A few years ago, we felt that it would be virtually impossible to produce a compound that would not appear in milk or produce an appreciable residue in meat and still have a systemic effect. There are now some that do not appear in milk and some that do not appear in meat. At the present time, we do not have one compound combining effectiveness and no residues in meat or milk, but the goal is definitely within sight.

*Chemistry and Metabolism.*—Most organic compounds are capable of being absorbed and transported throughout a treated animal's body. It is the ability to destroy a parasite after such transport that distinguishes a systemic parasiticide from other materials.

Five systemically active compounds, usually classed as organic phosphorus materials, bear certain chemical similarities, although the molecules differ widely (fig. 1).

Each of these materials causes a reduction of blood cholinesterase activity in livestock and other mammals following administration.

Organic phosphorus insecticides are usually readily metabolized by treated animals. Actual destruction of a parasite may be the result of action by the original compound, by one or more of the degradation compounds produced by the host, or by one or more degradation products produced by the parasite.

The derived metabolites are often more toxic for the host or parasite than the parent compound is. Metabolite(s) derived from dimethoate are 40 times as toxic as dimethoate.<sup>37</sup> In addition, the metabolite plus the parent compound is more toxic than the metabolite alone.

We must not ignore the chlorinated hydrocarbon moiety of ronnel, Bayer 21/199, or ruelene. Most researchers tend to follow the phosphatic moiety to complete extinction, then consider the matter at an end. The phenolic or ring portion of the molecule is often considered as a sort of insignificant byproduct of metabolism.

Progressive degradation of ronnel can be visualized by a diagram (fig. 2) showing release of phosphorus-bearing compounds.<sup>30</sup>

In our studies with ronnel,<sup>34</sup> we first observed poisoning of a chlorinated phenol type, followed by poisoning of the organophosphorus type. With Bayer 21/199, we observed signs of organophosphorus poison-

<sup>†</sup>Dimethoate is produced by the American Cyanamid Co., Pearl River, N.Y.

<sup>‡</sup>Dowco 109 and Ruelene are produced by the Dow Chemical Co., Midland, Mich.

ing, followed occasionally by those associated with chlorinated hydrocarbon poisoning. In more recent studies with Ruelene, we have seen signs of chlorinated hydrocarbon poisoning, followed by phosphatic poisoning signs, plus some in neither category.

These two-part poisonings are associated with the higher dosages of the compounds. At lower dosages, only 1 group of signs usually appears.

Proposals to administer metabolites rather than the parent compound have usually been unsuccessful because of the increased toxicity or hazard to the host. This is not universally true, as evidenced by one of the new materials, Ruelene, also referred to as the oxygen analogue of Dowco 109. This material is formed by animals from Dowco 109. It appears to be as effective as the parent compound and to be only moderately more toxic.

*Effects on Growth, Gain, Reproduction, and Economic Value.*—The livestock producer uses parasiticides for one purpose only—to increase his economic gain through the productivity of his livestock.

Equally important to him is the possibility that the treatment may result in eco-

nomic loss. Every effort is made by industrial, federal, and state laboratories to determine the effects of new compounds on growth, gain, reproduction, and economic value. Much remains to be done to enable us to be confident of our methods and, if possible, to speed our methods of determining these effects.

During 1958 and 1959, controversy arose over the effect of Bayer 21/199 upon sperm production. For several months, ranchmen were led to believe that treated male animals were sterile. This rumor reduced the sale of treated breeding stock and caused suspending of treatment during the breeding season. The point has been well established that there is no such effect upon cattle or sheep, the species originally concerned.

This incident points up the need for direct evaluation of the effect of agricultural chemicals on sperm and sperm production. Undoubtedly, the ova should be studied as carefully, but our techniques are limited essentially to determining conception in the female. We may find that this determination of conception is the court of last resort to prove a lack of harmful effect upon reproduction.

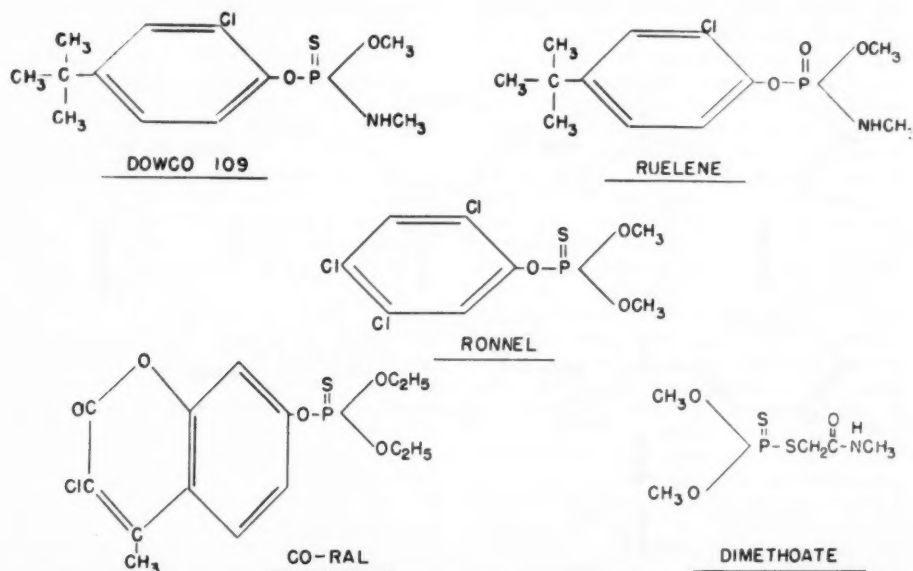


Fig. 1—The structural formulas of 5 systemic insecticides.

This problem has been stated briefly, but deriving the required answers is expensive and time-consuming. As a rapid screening procedure, we should utilize experimental species capable of rapid reproduction, such as mice or rats, followed finally by livestock.

In some tests, we<sup>17</sup> and others have observed a loss of weight or lack of gain following treatment (fig. 3). In all these tests, later gains compensated for the losses and often were greater than gains of untreated animals. There is no real economic loss unless the animals are sold during the periods of loss or zero gain.

#### Problems in Administration

In 1956, we discussed certain problems concerning administration of parasiticides.<sup>32,33</sup> At that time, many of them were considered only as possibilities; now they are realities.

*Sprays.*—One assumes a procedure as simple as spraying could be accomplished by the village half-wit with excellent results. This is certainly not true. Failures to obtain satisfactory parasite control in the hands of experts indicates that there are factors which must yet be understood.

We have found that wetting an animal to the skin is extremely difficult to accomplish with uniformity, regardless of spray pressures, patterns, or operators. A lack of uniformity in the application cannot be expected to produce anything better than erratic control of parasites.

*Oral Administration.*—Single oral dosing, a simple operation, has developed complexities. The physical form of the dose influences speed of absorption and the absorption curve. In the light of present knowledge, the duration of the chemical in the blood stream may be a highly critical factor, both to the host and the parasite. Uniformity in this regard must be developed.

Desirable control of some parasites has been obtained by using either small repeated (multiple) doses of compounds or by adding the material to feed as a small percentage of the total and allowing animals to treat themselves.

This latter method offers certain advantages. It permits a nonresidual parasiticide to be maintained at an effective level in the blood stream and tissues over a much longer period than can be obtained with a single dose.

However, the method is crude because dosages are erratic, and the control of parasites may not be satisfactory. Gross ine-

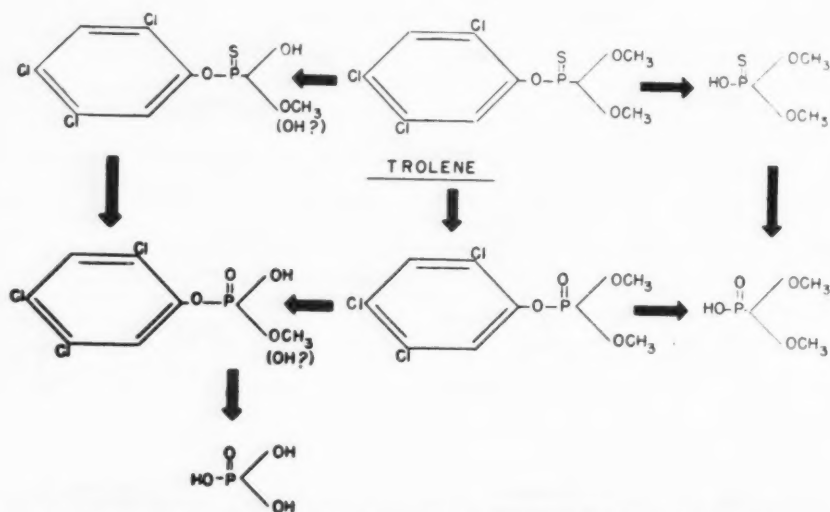


Fig. 2—Theoretical breakdown of ronnel (Trolene) as visualized by Plapp and Casida (Agric. and Food Chem., 6, 1958: 662).

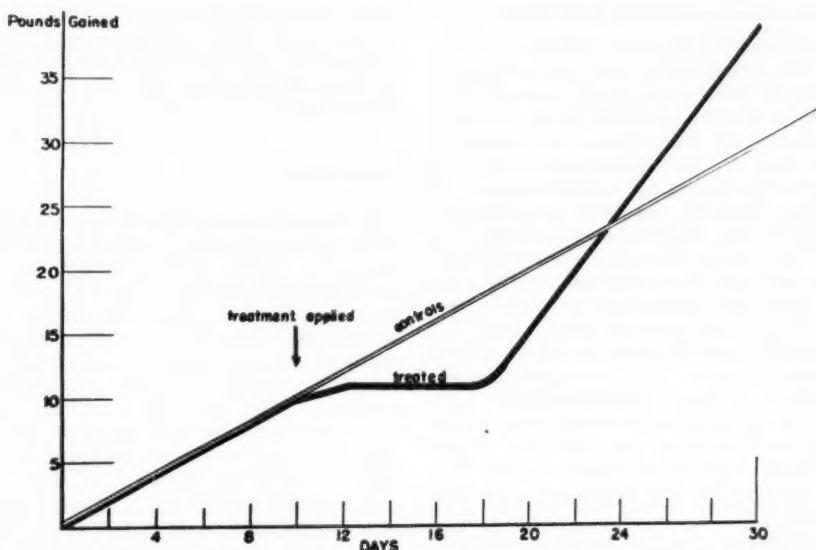


Fig. 3—Diagrammatic presentation of effect on weight gain following insecticide administration.

quality of dosage in cattle fed phenothiazine has been observed,<sup>1</sup> and the control of cattle parasites by feeding phenothiazine has been reported to be so erratic that it is not worthwhile.<sup>7</sup>

**Intramuscular and Subcutaneous Injection.**—Materials which are adaptable to subcutaneous administration will soon be available. Dimethoate has been thoroughly studied in this respect.

The problems of a sepsis and administration site are obvious. Additional research will likely show the superiority of materials administered in this manner when such materials are formulated to be absorbed at predetermined rates.

**Control of Absorption.**—With all the routes of administration using phosphorus 32-labeled insecticides, one of the most provoking problems in our studies has been the failure of supposedly uniform treatments to produce uniform rates of absorption and resultant uniform blood levels.

It is easy to charge these varying reactions to individual characteristics. Careful study of these variables will lead to more consistent control of parasites with considerable reduction in required dosage.

With all methods of administration, there may be distinct advantages in sustained

blood levels. If so, then formulations need to be designed to provide the proper absorption pattern. Some effort was made in this regard when we explored the chlorinated hydrocarbons.<sup>26</sup> At that time, the gross volume of insecticide distinctly limited experimentation. The situation is now more favorable due to the advent of materials effective at much lower dosages. (The time is propitious for intensive research in this field. We have such studies underway at our Kerrville laboratory and hope that many others will enter this field to make their contributions.) A product which is "tailor-made" to the parasite problem at hand should be forthcoming.

Hypothetical absorption curves representative of data obtained in our laboratory show that, although dosages are the same, the levels of compound in the blood vary widely, resulting in a variety of host-parasite toxicities (fig. 4, 5). This variation suggests that, if the rate of absorption could be controlled, uniform parasitocidal activity might be obtained with a lower dosage.

Regulated absorption will involve not only the absorption rate and blood levels reached, but also the time during which a therapeutic level is sustained.



#### Problems of the Host-Parasite Relationship

##### *Understanding Host-Parasite Metabolism.*

—If the entomologists and parasitologists succeed in developing their understanding of why a given parasite is or is not killed by a compound, we will see rapid advances in parasite control. Beginnings have been made in this search for understanding, and excellent research has been accomplished. In spite of this, only the most general ideas of action against parasites are understood.

Studies have been conducted<sup>30</sup> which reveal that gastrointestinal microflora and microfauna can destroy insecticides, but few studies have revealed the effect of such compounds upon the organisms. Potent disruptors of insect and mammalian physiology can be expected to affect these minute plants and animals, also. Studies of soil microflora and microfauna indicate that this effect exists, but it has not been fully evaluated.

##### *Host Insult Due to Dead Parasites.*—

Newer systemic compounds, particularly Bayer 21/199 and Ruelene, offer broad spectrums of activity against arthropod and helminth parasites. There will be efforts to perform treatments at optimum times to gain maximum effectiveness. These facts imply that parasites of many varieties may be simultaneously killed. Dead parasites may produce undesirable side effects.

*"Side Reaction"*.—A phenomenon not yet understood, but generally termed "side reaction," has appeared. This nondefinitive term applies to a host disturbance that is not due to ordinary poisoning by the chemical but which follows soon after the administration. It may be lethal.

The phenomenon has been most regularly observed with ronnel but also has been seen following use of certain experimental systemic insecticides. In the syndrome following treatment, there is posterior paralysis which may be transitory or prolonged. There also may be partial-to-complete inappetence, diarrhea, and other digestive upsets. While morbidity may be high in an occasional herd, mortality is low. Curiously, the syndrome has been observed most frequently in the fall and winter and in feedlot cattle infested with *H. bovis*. Range cattle are not usually involved unless they are on supplemental feed and then only during fall and winter. Various theories have been advanced concerning the etiology of these side reactions, including anaphy-

laxis, mechanical damage to the spinal cord by disturbed grub larvae, toxicity due to metabolites, and plane of nutrition. None of these explanations has been thoroughly satisfactory.

#### Compatibility

Evidence indicates that we cannot ignore drug incompatibilities with the newer insecticides. While Bayer 21/199 has not been involved in the side reactions described, there have been several reports of undesirable reactions in cattle and goats when insecticide sprays were applied immediately before or after phenothiazine treatment. The need for a careful watch for such actions was pointed out in 1956.<sup>32,33</sup> The problem of side reactions now appears acute and must be carefully studied, but satisfactory resolution is difficult because reactions occur in only an extremely small percentage of animals treated. Apparently, the reaction is not simply one of incompatibility, and it may involve one or more factors other than the 2 chemicals given as treatments.

#### Toxicity

##### *Recognition of Poisoning by Newer Insecticides.*—

Until 1955, we were satisfied that poisoning by synthetic organic insecticides could be classified as either of chlorinated hydrocarbon or organic phosphorus type. Because these in turn mimicked many diseases, particularly those of the nervous system, many difficulties in differential diagnosis were encountered.

These diagnostic difficulties have been intensified with the advent of compounds showing both groups of symptoms at different times.

Opportunity to study the poisoning of horses is not usually afforded us. Recently our workers<sup>10</sup> studied the control of the horse bot. During these studies, several horses were poisoned with organophosphorus insecticides. The signs were in sharp contrast to those observed for these chemicals in other animals.<sup>31,35</sup> Colic was the predominant display, together with digestive upset.

Attempted confirmation of a diagnosis of organic insecticide poisoning by chemical analysis is a waste of time because the

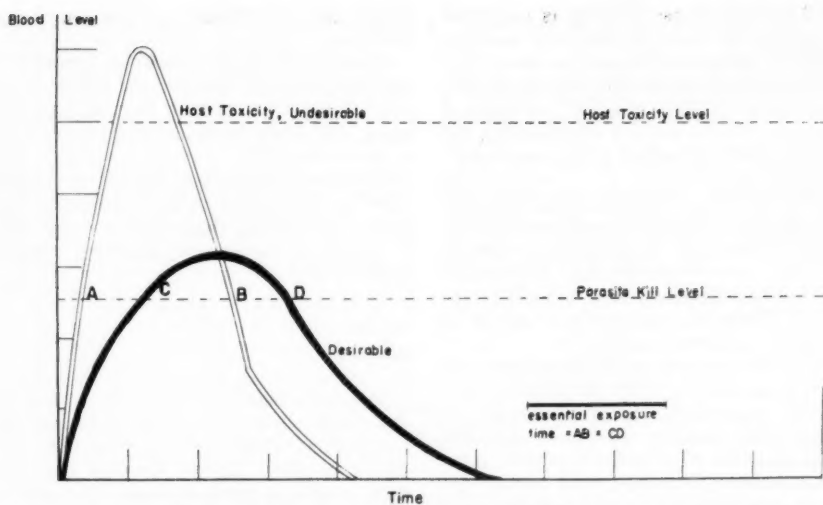


Fig. 4—Diagrammatic presentation of parasiticide effectiveness, with and without host toxicity, using identical dosages and methods.

results usually serve only to confuse. With compounds showing significant tissue residue as a characteristic, the presence of the material confirms exposure and nothing more. It is possible to kill an animal with a compound with small residues resulting, or to fatten it with the development of

high residues. This was demonstrated in work with heptachlor and heptachlor epoxide.<sup>6</sup>

The chemical analysis is completely valueless with materials, such as Bayer 21/199, which leave no appreciable residue, even with excessive doses.

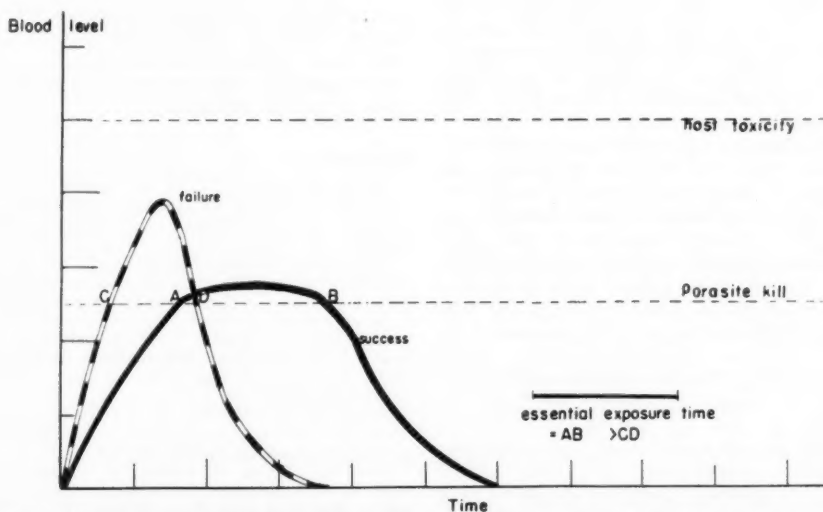


Fig. 5—Diagrammatic presentation of 2 levels of toxicant from identical dosages. There was no host toxicity; complete parasite control resulted in 1 case and failure in the other.

Blood cholinesterase activity is inhibited or destroyed by most of the new organophosphorus parasitocides and by some carbamates. Determination of activity of this enzyme in controlled research provides a reasonably reliable method of assessing the degree or extent of effect of a given treatment.

Cholinesterase activity can be used under field conditions to indicate exposure to enzyme inhibitors, but its usefulness stops at that point. Low level or total absence of blood cholinesterase activity does not indicate that poisoning exists or has existed as manifested by clinical signs.

This point concerning cholinesterase has been emphasized in another publication.<sup>13</sup> We have repeatedly observed absence of cholinesterase activity during treatments with no evidence of objective clinical signs. Other workers<sup>16</sup> have described normal appearing animals with an absence of blood cholinesterase. A cholinesterase technique has been described<sup>9</sup> as a diagnostic test, but the authors emphasize the need for proper diagnostic signs and history, and state that the method is only a guide.

Reaching an accurate diagnosis in some cases is difficult. There are few situations in veterinary medicine where clinical signs, such as those produced by a poison, can be so easily confused with signs of so many other disease conditions.

The practicing veterinarian must carefully study the history, signs, and lesions of the puzzling case at hand. He should deliberately bias his thinking by being reluctant to give a diagnosis of poisoning until all other possibilities have been carefully excluded.

I suggest this bias for two reasons. First, so much care is used in evaluating the hazards of insecticides prior to marketing that poisoning following recommended use is unlikely. Second, hundreds of cases have been diagnosed as insecticide poisoning that later proved to be rabies, Aujeszky's disease, encephalitis, plant poisoning, or poisoning from materials such as arsenic or lead.

**Treatment.**—Treatment of insecticide poisoning is largely nonspecific, with the exception of the use of atropine sulfate against organic phosphorus and carbamate poisoning. Symptomatic treatment should be instituted first. Sedatives should be used against central nervous system hyperstimulation; atropine, against organophosphorus

signs; and stimulants, against severe depression.

The poison should then be removed by washing, gastric lavage, or saline purgation. Careful nursing, with a minimum of noise and other environmental distraction, is then indicated.

We should emphasize that atropinization must be maintained in some cases for many hours. In general, the longer atropinization is required, the less satisfactory recovery is likely to be.

#### Summary

There are many problems associated with the development of successful insecticides, particularly those with systemic activity. These problems include freedom from residues in animal products used for food, control of absorption and elimination, methods of administration, compatibility of drugs, and toxicity. Also of importance are the problems of host insult caused by dead parasites.

Two presently available insecticides with systemic activity, ronnel and Bayer 21/199, are able to satisfy these requirements in a reasonable manner. Other such materials are close to perfection.

It is highly probable that a selection of desirable chemical qualities eventually will be made into one compound that will, when administered in properly controlled formulations, meet all requirements of freedom from food residues, low mammalian toxicity, and high efficacy against a wide variety of animal parasites.

#### References

- <sup>1</sup>Baker, N. F., and Allen, P. H.: Report of a Field Trial on the Use of Phenothiazine Preparations in Feedlot Cattle. *J.A.V.M.A.*, 133, (Sept. 1, 1958): 265-268.
- <sup>2</sup>Barrett, W. L., Jr., and Wells, R. W.: Transplantation of Hypoderma Larvae and Testing Chemicals for Control of Larvae in Experimental Hosts. *J. Econ. Entomol.* 41, (1948): 779-782.
- <sup>3</sup>Bishopp, F. C., Laake, E. W., Brundrett, H. M., and Wells, R. W.: The Cattle Grubs or Ox Warbles, Their Biologies and Suggestions for Control. *USDA Bull.* 1369, (1926): 38.
- <sup>4</sup>Bruce, W. G.: The Use of Phenothiazine in the Medication of Cattle for the Control of Horn Flies. *J. Econ. Entomol.*, 32, (1939): 704.
- <sup>5</sup>Brundrett, H. M., McGregor, W. S., and Bushland, R. C.: Systemic Cattle Grub Control with Bayer 21/199 Sprays. *Agric. Chem.*, 12, (1957): 36-37, 123, 125.
- <sup>6</sup>Buck, W. B., Radeleff, R. D., Jackson, J. B.,

- Claborn, H. V., and Ivey, M. C.: Oral Toxicity Studies with Heptachlor and Heptachlor Epoxide in Young Calves. *J. Econ. Entomol.* (1960): In press.
- <sup>1</sup>Cauthen, G. E.: Low-Level Phenothiazine Administration in a Cow and Calf Program. *Vet. Med.*, 53, (1958): 131-134.
- <sup>2</sup>Crenshaw, G. L.: Dow ET-57, a Systemic Animal Insecticide. *Down to Earth*, 12, (1956): 4-7.
- <sup>3</sup>Cox, D. H., and Baker, B. R.: A Diagnostic Test for Organic Phosphate Insecticidal Poisoning of Cattle. *J.A.V.M.A.*, 132, (May 1, 1958): 385-387.
- <sup>4</sup>Drummond, R. O., Jackson, J. B., Gless, E. E., Moore, B.: Systemic Insecticides for Control of *Gasterophilus* Bots in Horses. *Agric. Chem.* (1960): In press.
- <sup>5</sup>Graham, O. H., Wade, L. L., Colby, R. W., and McGregor, W. S.: Use of Dow ET-57 for the Systemic Control of *Dermatobia hominis* in Cattle. *Agric. Chem.*, 12, (1957): 51-109.
- <sup>6</sup>Graham, O. H.: Tests with Bayer 21/199 for the Control of Cattle Grubs. *J. Econ. Entomol.*, 51, (1958): 359-360.
- <sup>7</sup>Hazleton, L. W.: Review of Current Knowledge of Toxicity of Cholinesterase Inhibitor Insecticides. *Agric. and Food Chem.*, 3, (1955): 312-319.
- <sup>8</sup>Herlich, H., and Johnson, J. M.: Critical Tests on the Efficacy of Dow ET-57 as an Anthelmintic in Cattle. *J. Parasitol.* (5, sec. 2), 43, (1957): 19.
- <sup>9</sup>Herlich, H., and Porter, D. A.: An Anthelmintic for Cattle and Sheep. Critical Tests of Efficacy of Bayer 21/199. *Vet. Med.*, 53, (1958): 343-348, 360.
- <sup>10</sup>Jolly, D. W.: The Toxicity of Organic Phosphorus Insecticides. *Vet. Rec.*, 69, (1957): 796-800.
- <sup>11</sup>Jones, R. H., Brundrett, H. M., and Radeleff, R. D.: Ranch Tests Against Cattle Grubs with the Systemic Insecticide ET-57. *Agric. Chem.*, 12, (1957): 45, 95, 96.
- <sup>12</sup>Knipling, E. F.: Internal Treatment of Animals with Phenothiazine to Prevent Development of Horn Fly Larvae in the Manure. *J. Econ. Entomol.*, 31, (1938): 315.
- <sup>13</sup>Knipling, E. F., Bushland, R. C., Babers, F. H., Culpepper, G. H., and Raun, E. S.: Evaluation of Selected Insecticides and Drugs as Chemotherapeutic Agents Against External Blood-Sucking Parasites. *J. Parasitol.*, 34, (1948): 55.
- <sup>14</sup>Lindquist, A. W., Knipling, E. F., Jones, H. A., and Madden, A. H.: Mortality of Bedbugs on Rabbits Given Oral Doses of DDT and Pyrethrum. *J. Econ. Entomol.*, 37, (1944): 128.
- <sup>15</sup>Lindquist, A. W., Roth, A. R., Hoffman, Robert A., and Yates, W. W.: Chemotherapeutic Use of Insecticides for Control of Blood-Sucking Insects. *J. Econ. Entomol.*, 46, (1953): 610-614.
- <sup>16</sup>Marquardt, W. C., and Hawkins, W. W.: Experimental Therapy of Fly Strike in Sheep, Using a Systemic Insecticide. *J.A.V.M.A.*, 132, (May 15, 1958): 429-432.
- <sup>17</sup>McGregor, W. S., and Bushland, R. C.: Research on the Use of Systemic Insecticides for the Control of Livestock Pests. *J. Econ. Entomol.*, 49, (1956): 86-88.
- <sup>18</sup>McGregor, W. S., and Bushland, R. C.: Tests with Dow ET-57 Against Two Species of Cattle Grubs. *J. Econ. Entomol.*, 50, (1957): 246-249.
- <sup>19</sup>McGregor, W. S., Radeleff, R. D., and Bushland, R. C.: Some Phosphorus Compounds as Systemic Insecticides Against Cattle Grubs. *J. Econ. Entomol.*, 47, (1954): 465-467.
- <sup>20</sup>McGregor, W. S., Radeleff, R. D., Claborn, H. V., and Bushland, R. C.: Dieldrin, Aldrin and Lindane Systemic Insecticides Against Livestock Pests. *Agric. Chem.*, 10, (1955): 34-36.
- <sup>21</sup>De Meillen, Botha: Effects on Some Blood-Sucking Arthropods of "Gammexane" when Fed to a Rabbit. *Nature*, 158, (1946): 839.
- <sup>22</sup>Parman, D. C.: Ineffectiveness of Internal Medication of Poultry for the Control of External Parasites. *USDA Tech Bull.*, 60, 1928.
- <sup>23</sup>Peterson, H. O., Animal Disease and Parasite Research Division, USDA, Albuquerque, N. M.: Personal communication, March 5, 1959.
- <sup>24</sup>Plapp, F. W., and Casida, J. E.: Animal Metabolism of Insecticides: Bovine Metabolism of Organophosphorus Insecticides. Metabolic Fate of 0,0-dimethyl 0-(2,4,5-trichlorophenyl) phosphorothioate in Rats and a Cow. *Agric. and Food Chem.*, 6, (1958): 662-667.
- <sup>25</sup>Radeleff, R. D., Woodard, G. T., Nickerson, W. J., and Bushland, R. C.: The Acute Toxicity of Chlorinated Hydrocarbon and Organic Phosphorus Insecticides to Livestock. *USDA Tech. Bull.* 1122, (1955): 46.
- <sup>26</sup>Radeleff, R. D., and Woodard, G. T.: The Past, Present, and Future of Systemic Parasiticides. *Vet. Med.*, 51, (1956): 152-154.
- <sup>27</sup>Radeleff, R. D., and Woodard, G. T.: Toxicological Problems in the Use of Systemic Insecticides for Livestock. *J. Econ. Entomol.*, 49, (1956): 89-91.
- <sup>28</sup>Radeleff, R. D., and Woodard, G. T.: Toxicological Studies of Dow ET-57 in Cattle and Sheep. *J. Econ. Entomol.*, 50, (1957): 249-251.
- <sup>29</sup>Radeleff, R. D., and Woodard, G. T.: The Toxicity of Systemically Active Insecticides Administered to Livestock. *Proc. 10th (1956) Internat. Cong. of Entomol.*, 3, (1958): 737-739.
- <sup>30</sup>Raun, E. S., and Herrick, J. B.: Feedlot Tests of the Efficacy of Dow ET-57 (Trolene) for Control of Cattle Grubs. *J.A.V.M.A.*, 131, (Nov. 1, 1957): 421-423.
- <sup>31</sup>Roberts, R. H., Radeleff, R. D., and Kaplanis, J. N.: Bioassay of the Blood from Cattle Treated with American Cyanamid 12880. *J. Econ. Entomol.*, 51, (1958): 861-864.
- <sup>32</sup>Sanger, V. L.: ET-57 (Trolene) for Demodectic Mange—A Case Report. *J.A.V.M.A.*, 132, (Jan. 15, 1958): 56-57.
- <sup>33</sup>Schad, G. A., Allen, R. W., and Samson, K. S.: The Effect of Dow ET-57 on Some Sheep Parasites. *Vet. Med.*, 53, (1958): 533-534, 554.
- <sup>34</sup>de Toledo, A. A., and Sauer, H. F. G.: Efeito de Alguns Inseticidas Clorados Sobre o Berne (The Effects of Certain Chlorinated Insecticides on the Warble Fly). *Biologico (Brazil)*, 16, (1950): 25.

### Adenocarcinomas in Dogs, Caused by Insecticides

When the insecticide, phenoxymethyl chlorodithiethyl sulfite (Aramite), was given to 24 dogs in their food in doses of 500 to 1,500 p.p.m. for 46 months, 17 died and adenocarcinomas were found in the biliary tracts of 13.—*Vet. Bull.*, 29, (1959): Item 3894.

# Rabies Vaccine

*Modified Live Virus, Chicken-Embryo Origin*

AS A RESULT of publicity given to the testing of modified live virus rabies vaccines in New York by Dr. D. J. Dean, questions relative to the marketing of such vaccines have arisen. For purposes of clarification, the Council on Public Health and Regulatory Veterinary Medicine asked the Depart-

Recognizing the growing concern regarding loss of potency of modified live virus vaccines, the AVMA is attempting to clarify the situation. This special report, prepared for the COUNCIL ON PUBLIC HEALTH AND REGULATORY VETERINARY MEDICINE, explains what regulatory steps are being taken to assure potency of modified live virus rabies vaccine.

ment of Agriculture (specifically, Animal Inspection and Quarantine Division (AIQD), Agricultural Research Service) to prepare a statement outlining the additional tests required for production and marketing of modified live virus rabies vaccine by licensed producers. The following is the statement prepared for this purpose by AIQD of ARS:

Previously, vaccines produced by licensed manufacturers were required to pass satisfactorily a guinea pig potency test and a mouse sterility test prior to the release of production lots. Division field inspectors observed the production and testing on a "spot-check" basis. Based on the completion of a satisfactory test, each production lot was given an expiration date of one year but not to exceed 18 months from the initial harvest of the vaccine material. This allowed a manufacturer 6 months to prepare and test each production lot. Twelve months remained for marketing.

Effective Nov. 5, 1959, the Division made certain operational changes in the inspection and testing of modified live virus rabies vaccines, chicken-embryo origin. They are as follows:

Manufacturers are required to conduct virus

titration tests in mice and additional potency tests in guinea pigs to prove the stability of all production lots. No production lot found satisfactory by original test may be marketed for a period longer than 7 months unless it has satisfactorily passed retests started 5 months after the original test. Samples for retests must be obtained by each manufacturer from representative field-distributing points.

Testing, as described above, usually takes about 7 weeks.

Those production lots which do not pass the retests must be recalled and are not to be sold after the date that it becomes evident the retest will not be satisfactory.

Those production lots which satisfactorily pass retests may be marketed for the remainder of the 12 months prior to the expiration date.

Further, manufacturers are required to conduct additional retests on all production lots, irrespective of previous testing results, near the 12-month expiration date. The results of such tests will determine permitted expiration dates for vaccine subsequently produced by that manufacturer.

The Division has intensified inspection of the tests mentioned. All testing carried out by manufacturers is to be conducted under the direct observation of our field inspectors. The inspectors are actively involved in the collection of test samples, maintenance of test records, and submission of other pertinent data to the Washington office. The inspectors must see that all unsatisfactory vaccines are returned to the manufacturer and only authorized vaccines are released for sale.

The Division has underway its own testing program for rabies vaccines. Representative production lots of each license will be tested by our laboratory service unit temporarily located at Michigan State University.

The Division feels that this intensified inspection and testing will supply the information needed to resolve the problem. At the same time, it assures that manufacturers will offer potent vaccines for sale regardless of the expiration date. Some production lots may have only several months of market life, whereas others will have a 12-month expiration date.



## Senator Humphrey Introduces Bill to Expand Veterinary Medical Facilities

I (Hon. Hubert H. Humphrey of Minnesota) send to the desk a Bill entitled: "The Veterinary Medical Educational Facilities Construction Act of 1960."

Its purpose is to authorize a 10-year program of grants for construction of veterinary medical educational facilities.

This Bill arises out of recognition of the increasing significance of veterinary medical education and of the inadequacy of existing facilities.

The Bill touches but one phase of the challenge of veterinary medicine—the lack of funds for construction of new facilities.

Other needs should simultaneously be fulfilled, such as the need for more veterinary medical research projects, as such.

### Animal Health Serves Human Health

Introduction of this Bill does not in the slightest indicate an unawareness of vast unfulfilled needs in human medicine. On the contrary, it is a reflection of the latter interest. It is part of that interest. The two are inseparable—human health and the health of animals, whether most laymen recognize that fact or not.

A question before the Congress is not: "Shall we build more medical schools or more veterinary medical schools?"

The proper question is: "When will we act to meet *all* health needs?"—the needs of man in his entirety.

That, of course, means, first and foremost, more—many more—medical schools to graduate more M.D.'s in order to cope with a critical shortage of doctors which the U.S. Public Health Service has confirmed again and again.

But it also means more D.V.M.'s (doctors of veterinary medicine) through more veterinary medical schools and through expanding existing schools.

The layman—particularly the layman in the city—may not realize how tremendously important veterinary medicine is to this Nation.

On April 20, 1960, Senator Hubert H. Humphrey (D., Minn.) introduced legislation into the U. S. Senate to authorize \$35 million in federal grants to help finance a 10-year program of construction of veterinary medical educational facilities. Because veterinarians generally, regardless of political inclinations, will be in accord with the Senator's views concerning the need for more veterinarians and more facilities for developing veterinary science, the introduction of the bill is reprinted here.

### Veterinary Medicine Helps Relieve World Hunger

The layman may not understand how his own health is endangered by the shortage of doctors of veterinary medicine, both in government and private practice. The city layman may not have stopped to think what healthy animals mean to the United States and to other peoples of the world. Healthy livestock means food to the population and income to the farmer. But healthy livestock also means clothing, drugs and biological products, and industrial products. Livestock, particularly to other nations, represent draft power, fuel, fertilizer—indeed a symbol of wealth itself.

In our mutual security program abroad, we should recognize that the critical food problem in foreign countries cannot be met except through improved veterinary medicine.

### The Origin of this Bill Is Twofold:

1) From my personal familiarity with the outstanding work performed by the College of Veterinary Medicine of the University of Minnesota, and at land-grant and other colleges throughout the land.

2) In facts which have come to my attention in my capacity as chairman of the

Senate Subcommittee which has been studying problems of medical research on a worldwide basis.

Out of this study is now being prepared a comprehensive Committee Print which will tell the story of veterinary medicine in the United States and throughout the globe. This will be a factual volume. It will not for the present attempt to present the conclusions of the Subcommittee. Only in the final report of our study will those conclusions be presented. But, through chart and text, it will tell one of the least-understood, yet one of the most important, stories involving the health of the American people.

Extensive contents of the Print have been arranged through the excellent co-operation of the Agricultural Research Service of the U.S. Department of Agriculture, in conjunction with our Subcommittee staff.

But my action today in introducing this Bill is as an individual senator, one who feels the need for America to move ahead—now this year—in 1960—on this comparatively neglected front.

#### **Shortage of Veterinarians**

These points should be noted:

We have 22,000 veterinarians today in the United States. That is not enough. There are at present 18 veterinary colleges in the United States. These colleges have won impressive laurels in the history of world veterinary medicine.

They graduate 850 annually. That is not enough.

The U.S. Department of Agriculture right now needs 300 veterinarians. State, local, and U.S. public health department need 250. More are needed for poultry disease control, for state and local food inspection programs, and for research.

Estimated requirements, by 1975, based on a population of 230 million are: approximately 35,000 veterinarians—1,200 graduates annually to reach the estimated need of total veterinarians 15 years from now.

#### **The Cost of Animal Disease**

I know, of course, that economy-minded individuals hearing of this Bill may still question its cost. I should like them, how-

ever, to think of the cost suffered by the United States from not having adequate veterinary medicine.

The fact is that, fortunately, we have the greatest veterinary medical system in the world. But despite this system, annual losses amount to \$2.7 billion—I repeat, \$2.7 billions—not millions—because of animal and poultry diseases and parasites.

What does this mean to the farmer? It means that for every \$100 which an American farmer receives in cash from the marketing of animals and animal products, \$15.50 is lost to disease and pests. And this occurs in a nation which is rightly regarded as the safest place in the world to raise livestock. The fact is that the U.S. livestock industry is extremely vulnerable to widespread losses from infectious and contagious diseases. Why? In part, because animals can be moved so swiftly thanks to modern transportation, by air, rail, motor, and water vehicles.

#### **Veterinary Medicine Part of Human Medicine**

But there is an infinitely more important cost which this Bill is designed to help reduce. I refer again to the cost in human health. The fact must be repeated that veterinary medicine is part and parcel of human medicine. Veterinary medicine serves three purposes in this connection:

- 1) It removes sources of exposure or infection to man by eradicating or controlling animal diseases which are transmitted from animal to man.
- 2) It develops preventive agents or treatments for animals which can be adapted for use in human cases.
- 3) It provides food hygiene programs to protect the consumer against possible food-borne diseases.

Has anyone ever estimated the total direct and indirect costs of a single major epidemic of a food-borne disease in a large city?

Do the people of America realize what a foot-and-mouth disease epizootic, if it ever got started and if it raged unchecked, could mean to the cattle of the United States?

Do our people realize that disease and pests already claim 1 animal in every 5 produced?

Can a tangible value be put on the factor of countless millions of our citizens enjoy-

ing the companionship of healthy animals, dogs, cats, and other pets in their homes and on their farms?

And what of the value of a single human being stricken by a virus which may be caught from swine or other animals?

#### **Animal Diseases Transmissible to Man**

Remember, there are no less than 100 animal diseases that can be transmitted to man. Has anyone ever estimated the cost to society of a single child who has been bitten by a rabid dog?

Veterinary research has provided new and indispensable knowledge of tuberculosis, brucellosis, sleeping sickness (encephalomyelitis), hookworm, and other diseases transmissible to man from animals. Counterattack is essential against these diseases transmissible to man.

But we must attack, too, diseases which strike both man and animal, whether or not transmissible between them.

It is no accident that the National Institutes of Health have soundly granted \$1 million to the School of Veterinary Medicine of the University of Pennsylvania for research on cardiovascular diseases. It is no accident that the American Cancer Society has granted \$100,000 for research on cancerous diseases of chickens.

As of February, 1960, Dr. C. D. Van Houweling, assistant administrator, U.S. Agriculture Research Service, informs me that \$2.7 million has been awarded by na-

tional granting agencies for research in whole or in part connected with veterinary medicine.

These are figures compiled by Bio-Sciences Information Exchange.

But these research totals are not enough to satisfy the scientific needs of this nation.

Moreover, even if it were from the standpoint of public health activity alone, we could not afford a shortage of veterinarians.

In 1958, Dr. W. W. Armistead, then president of American Veterinary Medical Association, in testimony before the House Interstate and Foreign Commerce Committee on H.R. 7841 and 6784, estimated that there would be an increase by 1962 of 1,245 over the numbers employed in public health work at that time; 736 more than were then employed by the USDA. Current estimates by the AVMA indicate that these demands will continue to increase during the foreseeable future.

Are we going to take action now or are we going to ignore these rising future needs?

Are we going to make available money for those facilities so at least a beginning can be made on this phase of America's need?

Much remains to be done. We need sound salaries for veterinarians, sound career opportunities. But we need more schools and expanded existing schools.

So, I say, let's begin right now.

---

#### **Brucellosis May Cause Heart Damage in Man**

Brucellosis may cause heart disease in man, which has previously been attributed to rheumatic fever. Brucellosis in 37 guinea pigs caused no gross heart damage, but there was microscopic damage to heart tissue in 15. Damage was similar to that observed in rheumatic fever.

Of 117 heart disease patients who had positive skin test reactions to *Brucella* organisms, 60 had been given a diagnosis of rheumatic fever.—*Lab World*, 11, (1960): 219.

# Canine Pelvic Limb

## *Part I. Fully Developed Limb*

W. C. D. HARE, PH.D., M.R.C.V.S.

IN THIS PAPER, the radiographic anatomy of the pelvic limb is presented. No attempt has been made to illustrate or describe the metatarsal and digital regions, since these are essentially the same as the corresponding areas of the pectoral limb.<sup>1,2</sup> The illustrations presented are all of straight-limbed dogs, since the degree to which achondroplasia can be expressed varies considerably.

### **Positioning and Technique**

The dogs were anesthetized with barbiturates prior to positioning. In all exposures, a focal-film distance of 36 inches was used, and the central ray was perpendicular to the film. The point to which the central ray was directed is not necessarily the best for radiography of a particular area, since the films illustrated were taken as part of a general survey.

The ventrodorsal view of the pelvis and coxofemoral articulation (fig. 4) was obtained by first positioning the dog on its back and then drawing the hindlimbs fully caudad and parallel with the longitudinal axis of the body. Next, the limbs were grasped at the tarsus and rotated medially so that the head of the femur was turned into the acetabulum. With the dog in this position, a frontal view of the femoral neck is obtained, although the shaft of the bone

appears shortened since its longitudinal axis forms an angle of approximately 115 to 130 degrees with the film. Par-speed screens and regular film were used with a Potter-Bucky diaphragm. The central ray was directed to the cranial end of the symphysis pelvis. Care was taken to assure that the dog was positioned symmetrically before exposing the film.

The mediolateral views of the limb (fig. 6, 10) were obtained by laying the dog on the same side as the limb to be radiographed. The upper limb was then abducted and retracted so that it would not obscure the view of the lower limb. Non-screen film was used, and the central ray was directed to the middle of the tibia and fibula.

The ventro (plantaro) dorsal views of the limb (fig. 8, 12) were obtained by first placing the dog on its sternum and drawing the limb to be radiographed fully caudad. The limb was then grasped at the thigh and held in position with the joints extended and the dorsum of the paw against the film. Non-screen film was used, and the central ray was directed to the middle of the tibia and fibula.

### **Commentary**

The position described for obtaining the ventrodorsal view of the pelvis and coxofemoral articulation is the one recommended<sup>3,5</sup> for the diagnosis of abnormalities of this articulation and the proximal end of the femur. Since this is an area that frequently requires radiographic scrutiny, attention is drawn to certain anatomical

From the School of Veterinary Medicine, University of Pennsylvania, Philadelphia.

The author acknowledges the advice of Dr. W. H. Rhodes, Department of Radiology, and of his colleagues in the anatomy laboratory. He thanks Miss L. Link and Mrs. L. Bartosch for the drawings in figures 1, and 2 and 3, respectively, and Mr. A. Marfaing, Wistar Institute, for the photographic work.

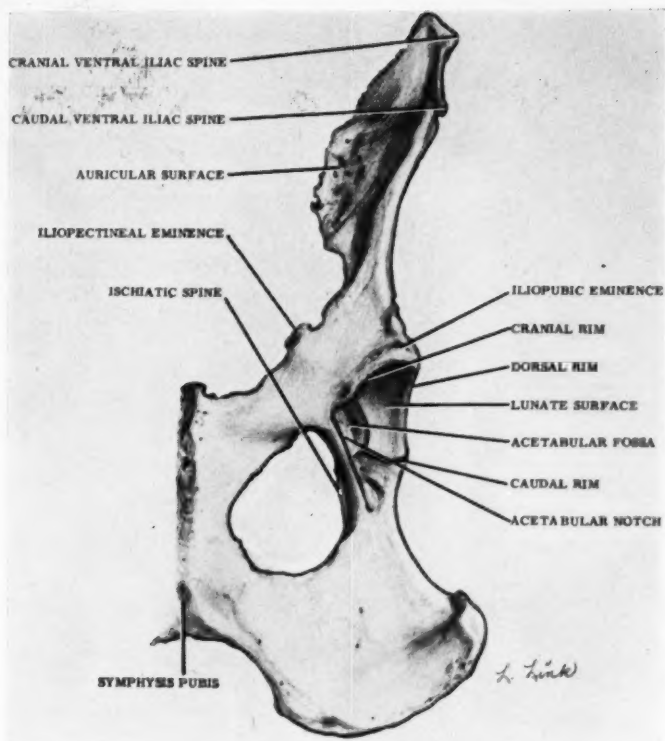


Fig. 1—Drawing of a left os coxae of a dog—ventral view.

features and their radiographic appearance.

The acetabulum is a cotyloid cavity with an articular and a nonarticular part (fig. 1). The articular part (lunate surface) is C-shaped. Its outer margin forms the cranial, dorsal, and caudal parts of the bony rim of the cavity, while its inner margin encompasses the depressed, nonarticular part, the acetabular fossa. Ventrally, between the tips of the lunate surface, the bony rim is incomplete and forms the ace-

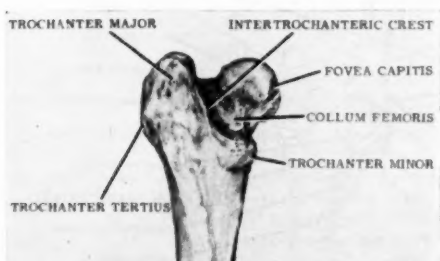
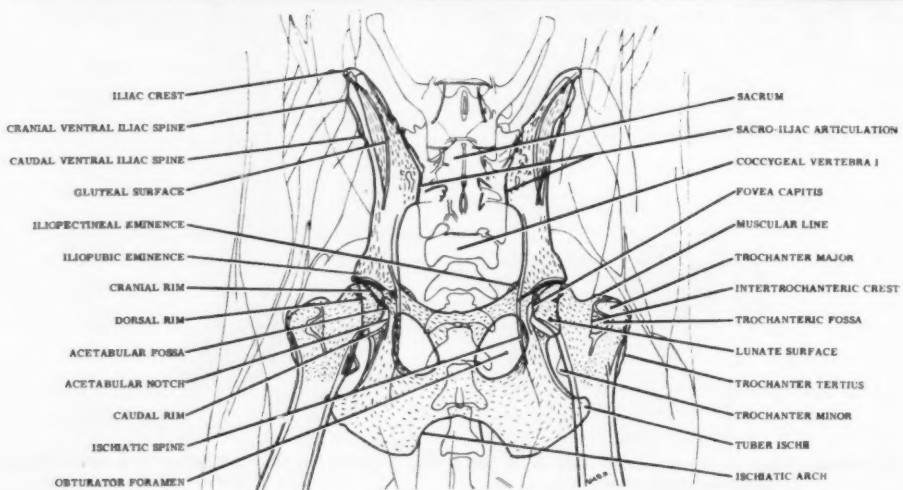


Fig. 2—Drawing of the proximal end of a left femur—caudal view.



Fig. 3—Drawing of a left femur of a dog—lateral view.





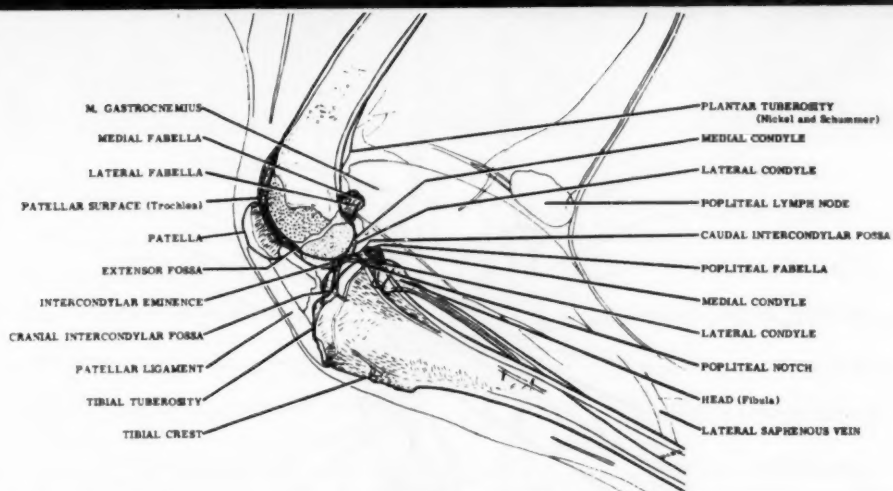


Fig. 4 (top, page 544)—Ventrodorsal view of the pelvis and the coxofemoral articulations of a 3-year-old female German Shepherd Dog.

Fig. 5 (bottom, page 544)—Labeled tracing of figure 4.

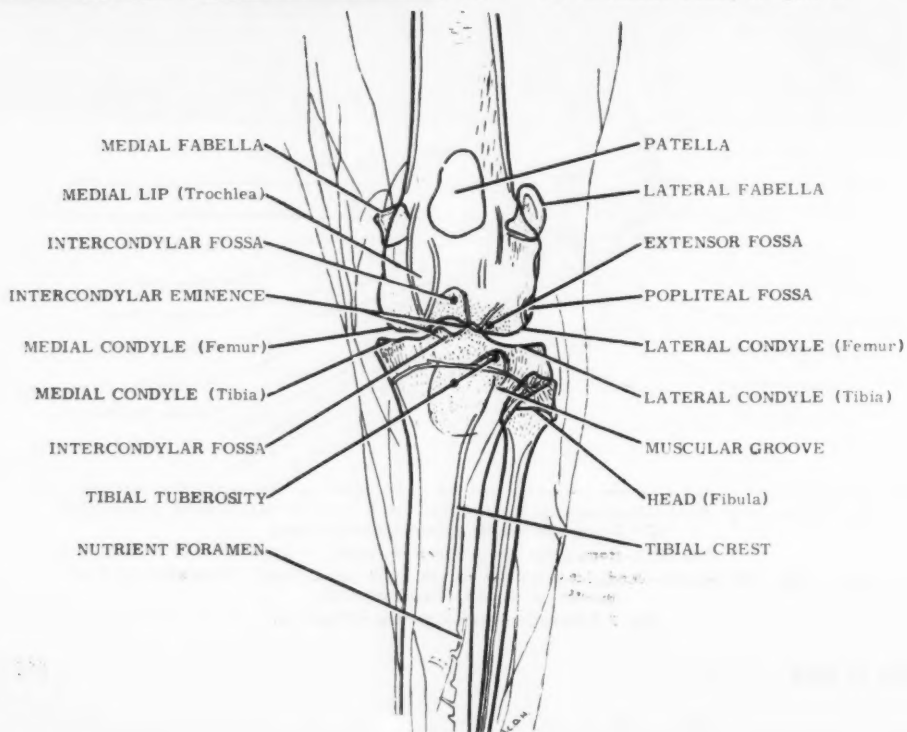
Fig. 6 (top, this page)—Mediolateral view of the right femorotibial articulation of a 12-month-old German Shepherd Dog.

Fig. 7 (above)—Labeled tracing of figure 6.



**Fig. 8—Ventrodorsal view of the right femorotibial articulation of a 12-month-old female German Shepherd Dog.**

**Fig. 9—Labeled tracing of figure 8.**



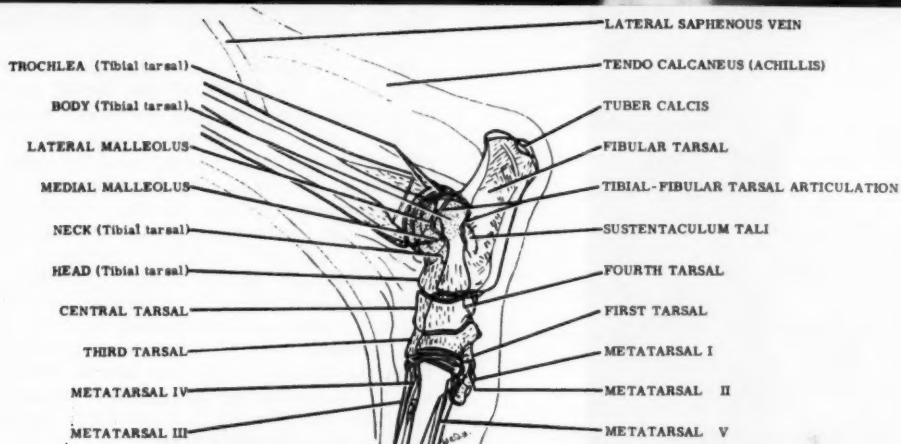


Fig. 10 (top)—Mediolateral view of the right tarsus and distal half of the tibia and fibula of a 12-month-old female German Shepherd Dog.  
Fig. 11 (below)—Labeled tracing of figure 10.

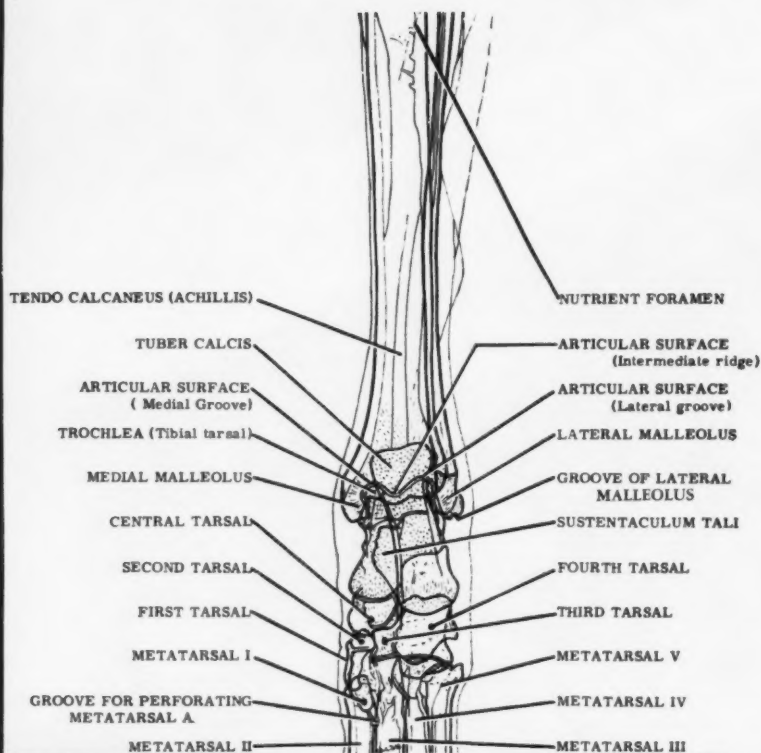


Fig. 12—Plantarodorsal view of the right tarsus and distal end of the tibia and fibula of a 12-month-old female German Shepherd Dog.

Fig. 13 (above)—Labeled tracing of figure 12.

tabular notch. The cavity faces laterally, ventrally, and caudally.

On a ventrodorsal radiographic view (fig. 4, 5), the image of the dorsal part of the bony rim forms the lateral boundary of the cavity. The images of the cranial part of the articular surface and the caudal part of the bony rim describe a semicircle broken medially by the acetabular notch. The bony wall of the acetabular fossa is very thin and is represented on the radiograph by an area of decreased density. The image of the cranial part of the bony rim is superimposed on that of the femoral head. It runs caudomedially from the cranial end of the lateral boundary to the acetabular notch; there it turns medially and forms a distinct angle which overlies the acetabular fossa.

The head of the femur is hemispherical



and smooth except for a narrow, depressed, nonarticular area, the fovea capitis, that extends from the middle of the surface to the caudomedial border (fig. 2). When the dog is positioned as described for the ventrodorsal view of the pelvis and the coxofemoral articulation, the head of the femur is turned into the acetabulum and, on the radiograph (fig. 4, 5), appears to fit well into the acetabulum with only a narrow band of decreased density, which represents articular cartilage, separating its outline from the concave outline of the acetabulum. The outline of the head appears semicircular except for a slight flattening, on the medial side opposite the acetabular notch, caused by viewing the fovea in profile. The image of the trochanter minor projects beyond that of the shaft, the neck is well defined, and the image of the patella is superimposed on that of the femur.

If the femur is rotated either medially or laterally from the described position, the fovea capitis is moved out of profile and the outline of the head appears entirely semicircular. Medial rotation also brings about a diminution of the part of the image of the trochanter minor projecting beyond the shaft, whereas lateral rotation results in an apparent shortening of the neck, the superimposition of the image of the trochanter major on that of the head, and the placement of the patellar image lateral to that of the femur.

The height of the shadow thrown by the trochanter major depends on the breed and on the angle that the longitudinal axis of the bone makes with the horizontal—the greater the angle, the higher the shadow. This can be demonstrated by placing the longitudinal axis of the femur at different angles to the horizontal, and then visualizing the path of the x-rays.

Views of the femorotibial articulation (fig. 6-9) show that there is considerable space between the condyles of the femur and those of the tibia. This is approximately the same width on each side and is due to presence of radiolucent, C-shaped, fibro-

cartilaginous menisci. The medial and lateral fabellae are located in the medial and lateral tendons of origin of the gastrocnemius muscle, respectively. The lateral is the larger of the two, although in the mediolateral view they appear nearly equal in size due to the magnification of the medial fabella which results from its being further from the film.

The fabella in the tendon of origin of the popliteus muscle is not seen in the ventrodorsal view because its image is of insufficient density to show through that of the lateral condyle of the tibia.

The lateral (anterior) and medial (posterior) cruciate ligaments are attached in the cranial and caudal tibial intercondyloid fossae, respectively, and in the femoral intercondyloid fossa. The extensor fossa is the point of origin of the long digital extensor muscle. In the mediolateral view, the patellar ligament is readily visible, and caudal to it there is an area of decreased density which represents a pad of fat.

Views of the tarsus and distal end of the tibia and fibula (fig. 10-13) show that the first tarsal bone articulates with the first metatarsal bone. Together they represent the vestigial first digit or hallux. The development of the first digit can vary from a complete digit, formed as in the pectoral limb, to the most vestigial form in which the first tarsal bone is fused with a much-reduced first metatarsal bone.

#### References

- <sup>1</sup>Hare, W. C. D.: Radiographic Anatomy of the Canine Pectoral Limb. Part I. Fully Developed Limb. J.A.V.M.A., 135, (Sept. 1, 1959): 264-271.
- <sup>2</sup>Hare, W. C. D.: Radiographic Anatomy of the Canine Pectoral Limb. Part II. Developing Limb. J.A.V.M.A., 135, (Sept. 15, 1959): 305-310.
- <sup>3</sup>Hoerlein, B. F.: Practical Small Animal Diagnostic Roentgenography. Vet. Med., 52, (1957): 21-26.
- <sup>4</sup>Nickel, R., Schummer, A., and Seiferle, E.: Lehrbuch der Anatomie der Haustiere—I Bewegungsapparat. Paul Parey, Berlin and Hamburg, 1954.
- <sup>5</sup>Schnelle, G. B.: Radiology in Small Animal Practice, 2nd ed., North American Veterinarian, Inc., Evanston, Ill., 1950.

#### Fistula of the Withers

Fistulous withers in 3 Shetland ponies was associated with *Brucella abortus* infection. The organism was isolated in pure culture from a lesion in 1 of the horses and all had positive agglutinin titers. Three cattle on this same farm reacted to the agglutination test.—*Ill. Vet.*, 2, (1959): 15.

# Drug Sensitivity of Bacteria

Isolated from Small Animals

Gianpaolo MAESTRONE, D.V.M.  
David L. COFFIN, V.M.D.

SINCE USE of antibiotics and chemotherapeutic agents has become almost routine in small animal practice, it is imperative that they are wisely selected to assure maximum efficacy. The data presented herein were compiled at the Caspary Institute based on studies of bacteria isolated from animals treated at the Speyer Hospital.\*

A survey of available literature published during the past 10 years reveals a paucity of reports of bacteriologic studies on dogs and cats. Most of these studies are concerned with organisms common to man and animals and the role of pets in transmission of diseases to man. Literature specifically concerned with recognition and treatment of disease in pet animals is scanty and limited to a few infections.

## Bacteriologic Data

A brief review of current literature of bacterial infections in small animals follows:

**Enteritis.**—*Proteus* sp. is considered a causative organism of enteritis,<sup>8,12</sup> although this organism has been isolated from stools of healthy animals.<sup>1,2,12,14,15</sup> *Pseudomonas* sp. was isolated from stools of a dog with a fatal case of enteritis.<sup>16</sup> *Paracolobactrum* sp. from stools of both normal and sick dogs,<sup>18</sup> and *Salmonella* sp. from stools of dogs with enteritis.<sup>2,4,7,12,22,26</sup> Although not indicative of the frequency of enteritis caused by these organisms, these reports reflect the interest in these organisms from a public health standpoint.

From the Animal Medical Center, New York, N.Y., where Dr. Maestrone is research associate and Dr. Coffin is director of research. Dr. Coffin is also research associate professor of veterinary pathology, University of Pennsylvania, Philadelphia.

\*The Margaret M. Caspary Institute for Veterinary Research and the Ellin Prince Speyer Hospital are units of the Animal Medical Center, New York, N.Y.

**Otitis.**—Ear infections are considered to be caused primarily by *Staphylococcus* sp.<sup>10,16,24</sup> and by *Pseudomonas* sp.<sup>11</sup> Mixed infections of the ear have been attributed to *Staphylococcus* sp., *Pseudomonas* sp., *Streptococcus* sp. and *Escherichia coli* by some authors,<sup>22</sup> and to *Staphylococcus*, *Proteus* and *Pseudomonas* sp. by others.<sup>19</sup>

**Dermatitis.**—*Staphylococcus* sp. has been considered the cause of dermatitis<sup>27</sup> and *Salmonella* sp. the cause of skin ulcerative infections.<sup>23</sup> Several other organisms, *Streptococcus* sp., *Micrococcus* sp. and gram-negative bacteria, have also been incriminated.<sup>28</sup>

**Conjunctivitis.**—In conjunctival infections, one investigator<sup>18</sup> isolated *Staphylococcus aureus*, *Proteus*, *Pseudomonas*, and *Streptococcus* sp., while others<sup>8</sup> found *Pseudomonas* sp. and *Staphylococcus aureus*.

**Rhinitis.**—Hemolytic streptococci were isolated from cases of rhinitis in small animals.<sup>20</sup>

**Nephritis.**—Hemolytic streptococci were isolated from animals with fatal cases of uremia<sup>20</sup> and, therefore, were considered responsible for renal infection in small animals.

**Septicemia.**—Cultures from dogs with bacteremia revealed *Pseudomonas* sp.,<sup>24</sup> *Esch. coli*,<sup>24</sup> and *Streptococcus* sp.<sup>23</sup>

**Endocarditis.**—*Streptococcus* sp., *Pseudomonas* sp., and *Esch. coli* were reported present at postmortem examination of animals with endocarditis.<sup>21</sup>

## Therapeutic Data

A brief review of current literature describing different methods of treatment of animal infections with antibacterial agents follows:

**Enteritis.**—Chlortetracycline, bacitracin, chloramphenicol, neomycin, and streptomycin,<sup>8</sup> as well as novobiocin<sup>21</sup> and chloramphenicol and dihydrostreptomycin combined,<sup>29</sup> were recommended as treatments for enteritis. *Streptomyces griseus* extract was effective in treating *Proteus* sp. infection,<sup>14</sup> while bacterins intradermally and streptomycin *per os* were also used successfully<sup>9</sup> against this same

TABLE 1—Percentages of Bacteria Isolated from 198 Small Animal Specimens

No. of specimens	Source of specimen						
	Feces 76	Ear 34	Skin 33	Urine 30	Eye 10	Nose 8	Mouth 7
ORGANISM	PERCENTAGES						
Mixed*	52.6	40.0	27.0	20.0	20.0	37.5	42.8
Proteus sp.	21.0	3.0	12.0	41.6	.....	.....	.....
Esch. coli	17.0	.....	6.0	6.4	.....	12.5	14.0
Staph. sp.	4.0	18.0	52.0	19.0	60.0	25.0	42.0
Pseudomonas sp.	2.6	12.0	.....	6.4	.....	.....	.....
Str. sp.	1.3	9.0	3.0	3.2	10.0	25.0	.....
Paracolonobacterium sp.	1.3	.....	.....	.....	.....	.....	.....
Diplococcus sp.	.....	6.0	.....	.....	10.0	.....	.....
Klebsiella sp.	.....	.....	.....	3.2	.....	.....	.....

\*The term "mixed" indicates 2 or more organisms were present.

organism. Chlortetracycline, chloramphenicol, oxytetracycline, and sulfadiazine were found ineffective as treatments for enteritis caused by *Salmonella* sp.<sup>22</sup>

**Otitis.**—Chlortetracycline ointment<sup>17</sup> and a combination of neomycin, polymyxin B, and mystatin were used successfully by another investigator<sup>20</sup> to treat otitis. Infections by gram-positive microorganisms were controlled with penicillin<sup>10</sup> and with penicillin and sulfonamides.<sup>22</sup> *Pseudomonas* sp. was found susceptible to streptomycin<sup>10</sup> and to streptomycin, neomycin, and chlortetracycline.<sup>22</sup> Oxytetracycline and polymyxin B were recommended for treating other gram-negative bacteria.<sup>22</sup>

**Bacterial Dermatitis.**—Wounds, abscesses, and bacterial skin infections responded favorably to treatment with chlortetracycline ointment,<sup>17</sup> while abscesses were treated successfully with novobiocin.<sup>21</sup> Infections due to *Salmonella* have been treated with sulfamethazine intravenously,<sup>23</sup> and streptomycin and chloramphenicol have been used with success against staphylococcal infections. Good results have been obtained using penicillin, streptomycin, neomycin, erythromycin, and chlortetracycline against gram-positive microorganisms, and bacterins against gram-negative bacteria.<sup>20</sup>

**Conjunctivitis.**—Chlortetracycline ointment,<sup>17</sup> as

well as penicillin,<sup>5,18</sup> were effective against conjunctivitis. Use of chlortetracycline, bacitracin, chloramphenicol, neomycin, and oxytetracycline was also recommended.<sup>5,18</sup> Chloramphenicol was effective against *Staphylococcus* sp. and a combination of polymyxin B, neomycin, and gramicidin against *Pseudomonas* sp.<sup>6</sup>

**Cystitis.**—Chlortetracycline, chloramphenicol, penicillin, streptomycin, and oxytetracycline,<sup>5</sup> as well as novobiocin,<sup>21</sup> were recommended as treatments for cystitis.

**Bacteremia.**—Penicillin in conjunction with streptomycin was suggested as a treatment for bacteremia<sup>21</sup> and, in the case of gram-negative agents, either polymyxin B or streptomycin were recommended.<sup>21</sup>

#### Material and Methods

Since this study was conducted as an adjunct to small animal practice, the methods chosen were simple and were adapted for use in the clinical laboratory. Although many specimens came from animals presented for initial treatment, much of the

TABLE 2—Percentage of Sensitivity to Antibacterial Agents of Bacteria Isolated from 174 Cultures in Local Disease Processes, Tabulated According to Source of Isolate

No. of specimens	Source of isolate						
	Feces 66	Ear 25	Skin 29	Urine 29	Eye 10	Nose 8	Mouth 7
ANTIBACTERIAL AGENTS	PERCENTAGES OF ACTIVITY						
Bacitracin	1.6	13	4	4	25	56	0
Chloramphenicol	68.0	52	60	63	70	70	25
Chlortetracycline	21.0	40	42	21	30	85	28
Erythromycin	20.0	28	36	24	90	85	56
Nitrofurantoin	84.0	64	85	87	100	100	100
Novobiocin	58.0	72	85	75	86	85	70
Oxytetracycline	24.0	32	40	28	20	28	28
Penicillin	1.5	12	19	3	30	28	0
Streptomycin	16.5	24	31	31	28	70	14
Tetracycline HCl	12.0	32	45	28	20	28	28
Tetracycline PO <sub>4</sub>	23.0	41	8	20	0	28	20
Trisulfapyrimidines	9.0	16	0	30	0	0	100

material originated from animals previously and unsuccessfully treated with antibiotics and chemotherapeutic agents at this hospital or elsewhere.

During the course of one year, 200 specimens were cultured for both bacterial identification and bacterial sensitivity tests.

In each case, 2 sterile cotton swabs were impregnated with exudates from infected wounds, external otitis, dermatitis, or feces and submitted for examination. Ordinarily, 1 swab was used for preparation of a smear which was stained with Gram's stain. The other swab was placed briefly in a tube containing 3 cc. of sterile tryptose broth. Then it was used to inoculate a blood-agar plate and an SS-agar plate for bacterial isolation and to streak a second blood-agar plate for bacterial sensitivity tests. After streaking the plates, the impregnated swab was replaced in the broth and incubated with the plates overnight to serve as a reserve in case there was no growth on the plates.

Specimens of urine or exudates were centrifuged and the sediment handled in a manner similar to the above. Fecal specimens were seeded into selenite broth, incubated overnight and subcultured the following day on SS-agar for detection of *Salmonella*. The different types of colonies were isolated in pure cultures, submitted to Gram's stain and, eventually, biochemical tests to reach a gross identification (genus).

Sensitivity to antibacterial drugs was determined by placing diagnostic discs containing one or several of the drugs on

heavily inoculated blood-agar plates which were incubated a minimum of 12 hours before reading for bacterial growth inhibition. Multiple and specific discs\*\* in the shape of a star or ring and containing several drugs were placed on the inoculated agar plates.

The effect of the various agents on bacterial growth was evaluated by the presence of an inhibition zone; 2 mm. was considered the minimum readable effect.

## Results

Results show the frequency of various bacterial species isolated from different sources (table 1), percentage of sensitivity to antibacterial agents of bacteria from different sources (table 2), and antibacterial response of frequently isolated bacterial genera (table 3).

Significantly, classical antibiotics such as

\*\*Initially we used Desi-disc No. 2 (National Bio-Test, Inc., Omaha, Neb.) containing: penicillin (10 µg.); streptomycin (100 µg.); oxytetracycline (50 µg.); tetracycline (50 µg.); chlortetracycline (50 µg.); erythromycin (10 µg.); chloramphenicol (50 µg.); and trisulfapyrimidines (1 µg.).

Later, for a clearer reading because of disc shape, these were replaced by Multidiscs (Case Laboratories, Inc., Chicago) containing: chlortetracycline (10 µg.); bacitracin (5 µg.); chloramphenicol (10 µg.); erythromycin (10 µg.); nitrofurantoin (50 µg.); penicillin (1.5 units); streptomycin (10 µg.); oxytetracycline (10 µg.); tetracycline (10 µg.).

For sensitivity to tetracycline phosphate, we used Sumycin discs (30 µg.), (E. R. Squibb & Sons, New York, N.Y.).

For sensitivity to novobiocin, we used Sensi-discs (5 µg.) (Baltimore Biological Laboratory, Inc., Baltimore, Md.).

TABLE 3—Percentages of Sensitivity of Common Bacteria from Small Animals to 12 Antibacterial Agents

No. of Isolations	Organisms							
	Staph. sp.	Proteus sp.	Esch. coli	Str. sp.	Pseudomonas sp.	Esch. coli + Str. sp.	Proteus + Str. sp.	Str. + Staph. sp.
43	33	19	9	7	12	8	8	
ANTIBACTERIAL AGENTS								
PERCENTAGES								
Nitrofurantoin	95	89	100	77	45	90	75	82
Novobiocin	82	67	68	88	70	65	75	82
Chloramphenicol	76	67	89	77	45	75	88	62
Chlortetracycline	46	42	42	66	30	25	62	62
Erythromycin	48	28	66	30	45	25	50	50
Oxytetracycline	48	42	33	45	25	50	50	50
Tetracycline HCl	46	44	30	44	25	50	50	50
Bacitracin	30	44	33	30	43	25	43	25
Streptomycin	25	33	33	30	40	25	40	25
Trisulfapyrimidines	33	33	33	33	33	33	33	33
Penicillin	33	33	33	33	33	33	33	33
Tetracycline PO <sub>4</sub>	40	40	40	40	40	40	40	40

penicillin and streptomycin appeared to have a lower order of effectiveness than those broad-spectrum drugs more recently developed, such as nitrofurantoin, novobiocin, and chloramphenicol.

Of all the antibacterial drugs tested, nitrofurantoin showed the highest degree of effectiveness against common pathogenic organisms such as *Staphylococcus* sp., *Proteus* sp., and *Esch. coli*, followed by chloramphenicol and novobiocin. Novobiocin showed greater effectiveness against *Streptococcus* and *Pseudomonas* sp.

#### Discussion

The fact that a number of the animals had been ineffectually treated previously and harbored pathogens resistant to commonly used antibacterial agents shows the need for sensitivity testing in such cases. However, the prevalence of bacterial resistance, even in those cases with no history of previous treatment, indicates that strains resistant to antibacterial agents are widely established in the small animal population since such strains, even *in vitro*, showed no sensitivity to the most commonly used drugs. This situation is comparable to that in man, in which widespread use of antibiotics has resulted in development of bacterial resistance and necessitated critical selection of specific antibacterial agents. In veterinary practice, penicillin and streptomycin have been used so widely that these antibiotics have lost some of their usefulness.

It appears that, to achieve antibacterial effectiveness in veterinary medicine, more attention should be given to selection of the proper antibiotic or chemotherapeutic agent, emphasizing that the drug chosen be used to destroy the pathogen rapidly rather than merely to inhibit its growth and thereby allow emergence of a resistant strain.

#### Summary

A brief review of the literature on the frequency, location, and therapy of bacterial infections in small animals shows how additional antibiotics have been successfully tested in the treatment of small animal diseases since the time when peni-

cillin and streptomycin were the only antibiotics used. Correlation of bacterial resistance in animals and in man is established and emphasis is placed on the proper selection of antibacterial agents.

Comparative results of a one-year study of *in vitro* bacterial sensitivity, using 200 specimens obtained from different sources in small animals shows that most of the local diseases are caused by a combination of 2 or more microorganisms. Nitrofurantoin, chloramphenicol, and novobiocin were effective *in vitro* against the bacterial agents. Next in effectiveness was the tetracycline group. Penicillin and streptomycin showed only poor results.

#### References

- <sup>1</sup>Adler, H. E., Willers, E. H., and Levine, M.: Incidence of *Salmonella* in Healthy Dogs. J.A.V.M.A., 118, (May, 1951): 300-304.
- <sup>2</sup>Blasek, K., Jruska, K., and Kral, L.: Salmonellosis U Psu Vet., 3, (1953): 273-274.
- <sup>3</sup>Ball, M. R.: *Salmonella* in Dogs and Cats of the Los Angeles, Honolulu, and Bermuda Areas. J.A.V.M.A., 118, (March, 1951): 164-166.
- <sup>4</sup>Brown, R. G., Bruner, D. W., and Moran, A. B.: *Salmonella pullorum* in a Dog. J.A.V.M.A., 114, (Jan., 1949): 29.
- <sup>5</sup>Bunn, C. E. E., and Scheidy, S. F.: Antibiotic Agents for Veterinary Use. J.A.V.M.A., 121, (Aug., 1952): 95.
- <sup>6</sup>Cello, R. M., and Lasmanis, J.: *Pseudomonas* Infection of the Eye of the Dog Resulting from the Use of Contaminated Fluorescein Solution. J.A.V.M.A., 132, (April 1, 1958): 297-299.
- <sup>7</sup>Clarenburg, A., Teunissen, G. H. B. and Von Der Vlerk, Jr.: *Salmonella israel* in a Dog. Leeuwenboek ned Tijdschr., 20, (1954): 415-416.
- <sup>8</sup>Craige, J. E.: *Proteus* Group Organisms Infecting Dogs. J.A.V.M.A., 113, (Aug., 1948): 154-156.
- <sup>9</sup>Craige, J. E.: Intestinal Disturbances in Dogs: Differential Diagnosis and Specific Therapy. J.A.V.M.A., 114, (June, 1949): 425-428.
- <sup>10</sup>Dam, A.: Undersogelse over Bakteriefloren ved Otitis Esterna hos Hund. Nord. Vet.-med., 4, (1952): 1207-1210.
- <sup>11</sup>Farrag, H., and Mahmoud, A. H.: Otorrhea in Dogs Caused by *Pseudomonas aeruginosa*, J.A.V.M.A., 122, (Jan., 1953): 35-36.
- <sup>12</sup>Galton, M. M., McElrath, H. B., Stucker, C. L., and Hardy, A. V.: Salmonellosis in Dogs in Florida. Proc. Book, AVMA (1950): 117-122.
- <sup>13</sup>Gilbert, S. J.: The Association of *Proteus* with Canine Dysentery. Austral. Vet. J., 29, (June, 1953): 168-170.
- <sup>14</sup>Goret, P., Brion, A., Joubert, L., Renault, L., Jouvot, G., and Clavel, P.: Une Entérite a "Proteus" chez le Chien et Son Traitement. Bull. Soc. Sci. vét., Lyon, 53, (1951): 164-172.
- <sup>15</sup>Gorham, J. R., and Garner, F. M.: The Incidence of *Salmonella* Infections in Dogs and Cats in a Nonurban Area. Am. J. Vet. Res., 12, (Jan., 1951): 35-37.



- <sup>18</sup>Haas, K. B.: Use of Neomycin and Erythromycin in Veterinary Practice. *Vet. Med.*, 50, (Oct., 1955): 460-462.
- <sup>19</sup>Harms, H. F., Harms, H. F., Jr., and Harms, G. R.: Aureomycin Ointment Used in Infections of the Eye, Ear and Skin in Dogs and Cats. *J.A.V.M.A.*, 117, (Dec., 1950): 462-464.
- <sup>20</sup>Hsuang, G. D., Eads, F. E., and Stafseth, H. J.: Penicillin Ointment in the Treatment of Conjunctivitis in Dogs. *Cornell Vet.*, 40, (Jan., 1950): 4-10.
- <sup>21</sup>Jones, W. G.: A Preliminary Report of the Flora in Health and Disease of the External Ear and Conjunctival Sac of the Dog. *J.A.V.M.A.*, 127, (Nov., 1955): 442-444.
- <sup>22</sup>Kral, F.: Pyogenic Infections of the Skin and of the External Ear Canal in the Dog. *J.A.V.M.A.*, 130, (Jan. 1, 1957): 41-45.
- <sup>23</sup>Lorber, J. H.: Novobiocin — Oral and Intramuscular Use in Dogs and Cats. *J.A.V.M.A.*, 131, (Oct. 15, 1957): 378.
- <sup>24</sup>McBride, N. L.: Persistent Otorrhea in the Dog. *Proc. Book AVMA* (1953): 247-252.
- <sup>25</sup>Messow, C., and Stoll, L.: Ein Beitrag zur Salmonellose des Hundes. *Lebensmitteltierarzt*, 5, (May 10, 1954): 103-106.
- <sup>26</sup>Mosier, J. E., Twiehaus, M. J., and Cowan, J. H.: Septicemia in Puppies. *Univ. of Pennsylvania Vet. Exten. Quart.*, 143, (June 15, 1956): 111-113.
- <sup>27</sup>Phillips, J. E.: The Isolation of *Salmonella typhi-murium* from Skin Lesions in a Dog. *J. Path. and Bact.*, 66, (1953): 572-576.
- <sup>28</sup>Reitler, R., and Menzel, R.: Some Observations on *Salmonella* Strains in Dogs, Mice and Ticks. *Tr. Roy. Soc. Trop. Med. Hyg.*, 39, (1946): 523-527.
- <sup>29</sup>Richou, R., Guilhon, J., and Bousicaux, A.: Recherches sur les Staphylocoques Responsables des Staphylococcies Cutanées du Chien. *Rec. méd. vét.*, 132, (Aug., 1956): 599-604.
- <sup>30</sup>Schafer, K. E., and Parker, S. H.: Chloramphenicol and Dihydrostreptomycin (Chlorostrep) for Treatment of Diarrheas in Dogs and Cats. *J.A.V.M.A.*, 130, (June 15, 1957): 545-547.
- <sup>31</sup>Sears, A. C., Crow, E. W., and Ellison, E. H.: Treatment of Canine Otitis Externa with a New Antibiotic-Steroid Preparation. *J.A.V.M.A.*, 134, (Feb. 1, 1959): 130-131.
- <sup>32</sup>Shetty, K. S.: Bacterial Flora of Upper Respiratory Tract of the Dog with Special Reference to Streptococci. *Indian Vet. J.*, 29, (May, 1953): 513-531.
- <sup>33</sup>Shouse, C. L., and Meier, H.: Acute Vegetative Endocarditis in the Dog and Cat. *J.A.V.M.A.*, 129, (Sept. 15, 1956): 278-289.
- <sup>34</sup>Stucker, C. L., Galton, M. M., Cowdery, J., and Hardy, A. V.: Salmonellosis in Dogs. II Prevalence and Distribution in Greyhounds in Florida. *J. Infect. Dis.*, 91, (July-Aug., 1952): 6-11.
- <sup>35</sup>Verlinde, J., Winsser, J., and Kret, A.: Streptococcal Infections in Dogs. *Tijdschr. Diergeneesk.*, 72, (Jan. 15, 1947): 49-54 abstr. in *J.A.M.V.A.*, 112, (June, 1948): 488-489.
- <sup>36</sup>Witter, R. E.: Diseases of the External Ear Canal of the Dog. *Cornell Vet.*, 39, (1949): 11-31.

## Cattle Grub and Bruise Damage To Be Reduced in 1960

In 1958, the national cattle grub committee of Livestock Conservation Inc. (LCI) conducted a cattle grub survey at the packing plant level. The 12-month average damage rate was calculated at 51 cents per head. Loss due to carcass and hide damage was \$11,733,000, as compared with the 3-year average (1955-1957) of \$13,443,000.

According to LCI, national beef bruise losses amount to \$12,-000,000 or roughly 60 cents per head on all cattle slaughtered. Hog handling losses run in excess of \$7,000,000, and cripple and death losses during transit total \$8,000,000. It is estimated that 10 to 15 per cent annual reduction can be achieved quickly by placing special emphasis on approved safe handling procedures.

The LCI safe handling committee will attempt to reduce the national loss of \$50,000,000 in the field of safe handling by \$2,-500,000 in 1960. In the cattle grub category, where the carcass and hide damage is \$13,000,000, the cattle grub committee will try to lower this figure by \$2,500,000 this year.—*Nat. Provisioner*, 142, (1960): 46.

# Modern Anesthetic Techniques

*and Equipment in Small Animal Practice*

Eugene I. BROOKS, V.M.D.

MODERN TECHNIQUES and equipment for administration of anesthetics have improved survival chances of patients considered poor surgical risks, especially older animals. They allow use of inhalation anesthetics in conjunction with treatments that would previously have been avoided.

In private practice, our policy has been to make no charge when a fatality occurs during a routine operative procedure. We believe this policy impresses clients with the fact that we are able to continue our practice because we sustain so few losses. Owners of older animals and those suspected of being poor surgical risks are advised of the danger involved and also that a charge would be made regardless of the outcome of the case.

Since our present anesthetizer-vaporizer-resuscitator (AVR) equipment was added, not one fatality has resulted from the administration of anesthetic. Prior to the acquisition of this equipment, we considered it inadvisable to perform surgery on a patient over 12 years of age unless the owner was made to realize that the prognosis of the case was so grave that surgery offered the better chance for survival.

As a routine safety procedure, regardless of the type of anesthetic used, an endotracheal tube is passed in any animal that is subjected to anesthesia. If an injectable anesthetic is used, the endotracheal tube is not connected to the AVR unit but is held ready to be connected to the oxygen supply if the animal is hypersensitive to the injectable anesthetic.

Before the endotracheal tube is passed, we administer a preanesthetic sedative: morphine sulfate and atropine sulfate ( $\frac{1}{4}$  gr. and  $\frac{1}{150}$  gr. respectively for a 30-lb.

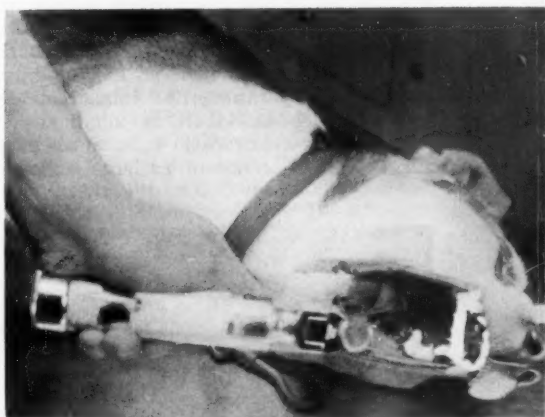


Fig. 1 — To ease insertion of endotracheal tube, a child's type laryngoscope is used. The instrument, which fits all small animals, provides good visualization of both larynx and trachea and thus reduces possible laryngospasm due to irritation of the larynx. The gauze tied around the upper jaw aids in opening the mouth.

dog) and atropine sulfate alone to cats ( $\frac{1}{100}$  gr.) followed by pentobarbital sodium ( $\frac{3}{4}$  gr.). The barbiturate is given relatively slowly and dosage is dependent on clinical signs of anesthesia (reflexes, etc.) and not on body weight. When dosage is determined according to body weight, there is a tendency to administer the intravenous anesthetic too rapidly and endanger the hypersensitive animal. Depth of anesthesia is determined by checking the corneal and pedal reflexes and observing the depth of respiration. With an adequate dosage of injectable anesthetic administered, the animal responds favorably to the insertion of the endotracheal tube.

An illuminated child's type laryngoscope, which fits small animals, is used to facilitate tube insertion. This instrument pro-

• Dr. Brooks is a small animal practitioner in Harboro, Pa.

vides an efficient way to combat laryngospasm caused by irritation of the larynx due to intubation. The tube or spoon of the laryngoscope, together with the illumination provided, enables the surgeon to observe the larynx and trachea. Light pressure under the trachea assists in dilating the lumen of the larynx to allow easy insertion of the laryngoscope. The endotracheal tube is then easily inserted, without any danger of larynx stimulation and subsequent laryngospasm. After the endotracheal tube has been passed, the laryngoscope is removed and the cuff on the endotracheal tube is inflated.

Injectable anesthetics are used with surgical procedures such as bone-pinning and routine operations. An inhalation anesthetic, such as ether, is administered through the endotracheal tube to all poor surgical risks, cesarean patients, animals

in severe shock, and to older animals in need of routine dental work. The ability to clean teeth in older patients is one of the greatest advantages brought about by safe and precise techniques of administering inhalation anesthetics.

Prior to using our present AVR equipment, it was impractical to administer an inhalation anesthetic to facilitate dental work because the ether mask or appliance interfered with treatment. We usually administered a tranquilizer intramuscularly and, if the dog or cat resisted treatment, the procedure was discontinued. Since most of the animals requiring extensive dental work are advanced in age, intravenous barbiturates were considered dangerous.

Using the AVR equipment and a mechanical, rotary-type dental instrument (portable dental engine with triple arm and handpiece), we no longer need to clean teeth

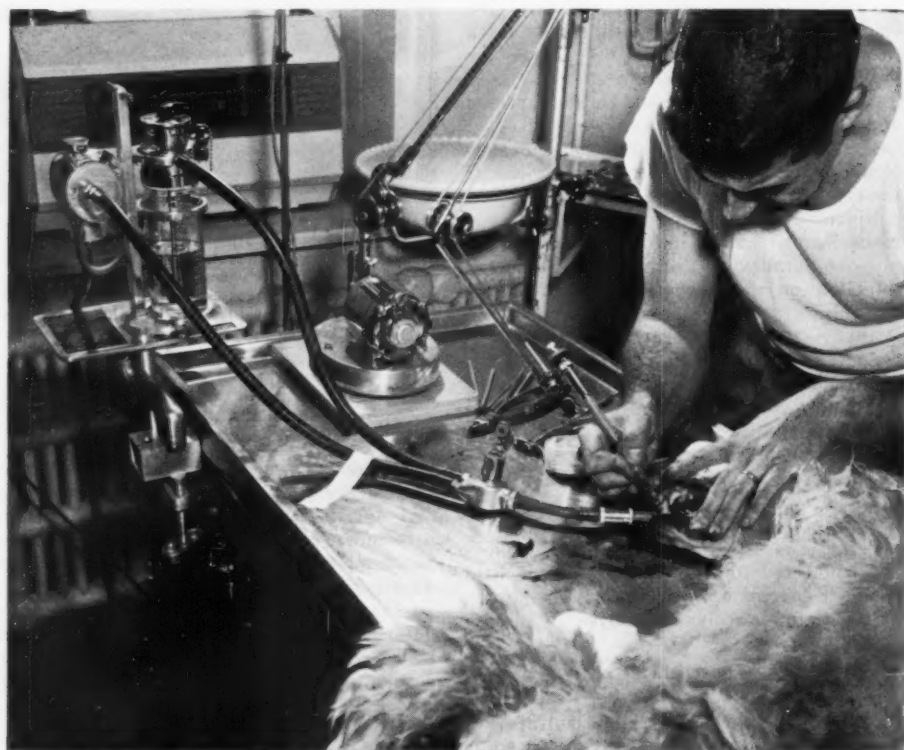


Fig. 2 — Dental work on older animals has been facilitated by utilizing an inhalation anesthetic through an endotracheal tube, which makes the animal's teeth easily accessible. Because the majority of animals requiring extensive dental work are at an advanced age, use of intravenous barbiturates is somewhat dangerous.

manually. The proper cleaning of a dog's teeth, made possible by this technique, improves the dog's ability to rest, eliminates much of the undesirable mouth odor, and promotes the patient's general well-being. After a proper cleaning, the patient usually will act years younger, and the owner appreciates the results.

We now use an AVR unit for the administration of inhalation anesthetics and as a resuscitator in emergencies.\* The rate of breathing is adjusted to an average of about 20 to 30 per minute. At the normal setting, the unit exerts 13 mm. Hg positive pressure at the peak of the inspiratory phase and 9 mm. Hg negative pressure at the peak of the exhalation phase. The positive pressure can be instantly adjusted within a range of 13 to 22 mm. Hg. For abdominal surgery, proper plane of anesthesia is determined by development of a very weak corneal reflex. For dental work, a desirable plane of anesthesia is reached when the corneal reflexes are still strong.

We have found that the AVR unit provides the versatility necessary for safe procedure. The anesthetic-oxygen mixture can be set or varied with the turn of a valve and the unit can provide automatic breathing or continuous insufflation. In addition, when necessary, 100 per cent oxygen can be administered at the flick of a valve.

The unit allows the veterinary surgeon in a one-man practice to handle anesthetic administration as well as surgery. The simplicity of the unit permits a capable lay assistant to become proficient in its operation with little or no technical knowledge. The unit we formerly used was complicated and, because of the rebreathing bag in the set-up, the volume of ether in the bag made it impossible to determine the amount of anesthetic being delivered to the patient.

#### **Applications of the Anesthetizer-Vaporizer-Resuscitator**

*Amputation in Aged Cat.*—A 22-year-old cat was admitted with a comminuted fracture of the tibia. Its advanced age indicated the need for a Leighton shuttle pin. The AVR unit, with the endotracheal tube, was used throughout surgery, which involved

open reduction procedure. At the end of 10 days, there was no sign of bone repair, and necrosis of the bone indicated removal of the pin and amputation. With ether as the anesthetic administered through intubation and the AVR unit, amputation was performed 1 inch below the joint. In an hour, the cat recovered and was standing again, showing few effects of surgery. This operation was performed in October, 1958, and the wound was completely healed by February of 1959.

*Respiratory Failure in Cat.*—On Nov. 3, 1958, a short-haired female cat, 1¾ years old, was given 1 gr. of pentobarbital sodium intraperitoneally for sedation before a routine ovariohysterectomy. An hour later, the cat was given ¾ gr. of a pentobarbital sodium preparation intravenously. Approximately 1 minute later, the animal collapsed with respiratory failure and no palpable heart action was detectable. The preinserted endotracheal tube was immediately attached to the AVR unit, set to deliver 100 per cent oxygen. At the same time, 0.20 cc. of amphetamine sulfate was administered for respiratory stimulation. Four minutes later, marked cyanosis had disappeared, and in 5 to 7 minutes palpable heart action was observed. The AVR unit, set to deliver 100 per cent oxygen continuously, was kept in use throughout surgery. Recovery was uncomplicated.

*Dog with Chronic Otitis.*—On Dec. 2, 1958, an 8-year-old male dog weighing 33 lb., was admitted for surgery of the ear. Routine procedures for endotracheal intubation were observed, and ether was used as the anesthetic. As the ether was being administered, a clicking sound within the AVR unit showed that an obstruction was present within the endotracheal tube or the trachea. The unit was immediately disconnected from the tube. A syringe connected to the endotracheal tube was used to suck up the obstructing mucus. With the obstruction removed, surgery was uncomplicated. This case clearly showed the value of immediate knowledge of the condition of the airways, rather than waiting for physical reactions such as cyanosis.

*Surgery with Nephritis Complications.*—On Nov. 11, 1958, a 14-year-old male dog weighing 38 lb., was admitted for removal of ulcerated tumors of the tail. This animal had been treated for chronic nephritis for the preceding 3½ years. Inhalation anesthetic was utilized because intravenously administered pentobarbital sodium would

\*This AVR unit is manufactured by National Cylinder Gas, Division of Chemetron Corp., Chicago, Ill.

be eliminated through the kidneys and impose additional stress. Routine procedure was followed, using the AVR unit and intubation. Surgery and recovery were uncomplicated.

**Enucleation in 13-Year-Old Dog.**—A 13-year-old female Cocker Spaniel was admitted at 4:30 p.m. on Jan. 9, 1959, after her optic nerve was severed in a dog fight.

The right eye was hanging out of its socket. With ether as the anesthetic, it was possible to perform enucleation by 6:00 p.m. Surgery was uncomplicated. If the AVR unit had not been available at the time, surgery, using an injectable anesthetic, would not have been possible before the following day, and surgical risk would have been greatly increased.

---

### Transfusion Reaction in Dogs

Transfusion of plasma from 1 dog to another was almost invariably followed by urticaria, failure to retain within the circulation the equivalent of transfused plasma volume and protein, and increased secretion of gastric acid. Cutaneous reaction was abolished and retention of plasma was improved by administration of antihistamine. Erythrocyte isoagglutinins did not seem to be involved in these reactions.—*Circ. Res.*, 7, (1959): 79; *abstr. 3967 in Vet. Bull.*, 29, 1959.

### Canine Distemper Antibodies in Human Serums

In the United Kingdom, serums from normal human beings aged 6 months to 40 years were tested for neutralizing antibody to egg-adapted distemper virus. Almost no antibody was present in individuals under 4 years of age but, after this age, antibody titers rose rapidly. A high titer was reached by 18 to 20 years of age and was maintained for a decade. Serums from Iceland and parts of Russia where dogs are uncommon, gave results generally similar.

There was no definite evidence that distemper virus was pathogenic to man.—*Acta Paediat.*, 48, (1959): 43; *abstr. 428 in Vet. Bull.*, 1960.

### Aujeszky's Disease in the Dog

Severe pruritus, typical of Aujeszky's disease, was observed in Holland in a bitch on which a hysterectomy had been performed 7 days previously. Pruritus began at the root of the tail. Attempts to transmit the disease were made in 10 rabbits of which 2 were given subcutaneous injections of blood, lung, and brain, and of bone marrow from the sacral and lumbar regions. Two rabbits were given injections of bone marrow and both died.

The neurotropic character of Aujeszky's virus can best be shown by examining that part of the central nervous system related to the site where pruritus is first observed.—*Off. Internat. des Épidémiol.*, 51, (1959): 1086.



*Repair of*

# Congenital Diaphragmatic Hernia

*and Umbilical Hernia in a Dog*

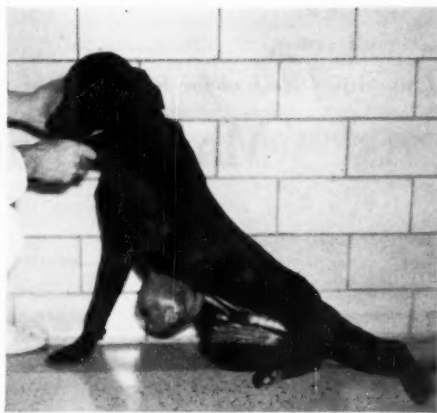
H. C. BUTLER, D.V.M.

ON SEPT. 15, 1958, a male Labrador Retriever, 8 months old, was referred to the Washington State University veterinary clinic by a veterinarian who had tentatively diagnosed congenital diaphragmatic hernia and umbilical hernia. The umbilical hernia had been present since birth and had gradually increased in size. The dog had no record of digestive or respiratory problems and appeared to be in good health.

Examination revealed a large umbilical hernia approximately 8 inches in diameter. The separation in the abdominal musculature extended from the umbilicus to the xiphoid cartilage. The hernial sac was readily reducible and contained much of the small intestine. The edges of the diaphragm could be felt as one pushed his hand into the invaginated hernial sac. Further palpation disclosed a V-shaped separation in the diaphragm with the apex of the V in the center of the diaphragm. The heart was easily palpated through this opening. The owner requested that an attempt be made to correct the condition.

The dog was anesthetized with ether and placed on a closed oxygen system where intermittent positive pressure could be applied.

A skin incision along the base of the hernial sac was made from the umbilicus to the xiphoid cartilage. The hernial sac was dissected free and the excess skin and hernial sac removed. The falciform ligament was excised, exposing the edges of the abdominal muscles. The edge of the liver was retracted posteriorly, exposing the opening in the diaphragm. Examination revealed an intramediastinal hernia. At no



**Fig. 1—An 8-month-old Labrador Retriever with congenital abdominal and diaphragmatic hernias.**

point was there an opening into the pleural cavity. The edges of the diaphragm were round and smooth.

The costal attachments of the diaphragm were severed for a distance of 2 inches on each side of the opening, allowing the edges of the opening in the diaphragm to be brought into apposition. After freshening the edges, the V-shaped opening was closed, using interrupted mattress sutures of No. 2 chromic gut and overlaid with simple continuous sutures. Interrupted mattress sutures of No. 2 chromic gut were then placed in the diaphragm at its costal margin and the diaphragm was sutured to the ventral aspect of the chest wall. The sutures were passed around the adjacent ribs and costochondral cartilages to add strength.

Suturing was performed under tension and tended to pull the xiphoid cartilage in-

The author is assistant professor in the Department of Clinical Medicine and Surgery, College of Veterinary Medicine, Washington State University, Pullman.

ward to a slight degree. The edges of the peritoneum on the abdominal wall were excised and the abdominal wall closed in routine fashion.

The dog was given antibiotics and sedatives for the first 3 postoperative days. Exudation from the abdominal incision necessitated removal of a few skin sutures

and local medication. There were no serious postoperative complications, and the dog was sent home in apparent good health 12 days after admittance.

Six months later, the dog was still in good health with no postoperative complications or recurrence of diaphragmatic herniation.

---

*A simplified Method for Repair of*

## Mandibular Fractures

*In the Dog*

Emilio ESTRADA, D.V.M.

A TECHNIQUE of repairing mandibular fractures in the dog, making use of an acrylic splint to hold the fragments in alignment, has been described.<sup>1</sup> Such a method has given excellent results but involves a good deal of mechanics which are not often within the scope of the general practitioner. This technique consists of taking an impression of the fractured mandible, making a cast, sawing apart the model, and reconstructing it to simulate the jaw as normally aligned. Then an acrylic splint is made to fit over the gums in much the same way as does a partial dental plate. When aligned properly, the jaw bones are held immobilized by the splint which is held in position in the mouth by stainless steel sutures placed through the soft tissues and skin.

In order to simplify the procedure, we have modified the technique. The patient

is placed under general anesthesia and the bone fragments manipulated into alignment. Using a fast-setting acrylic compound,\* a gel is made by mixing the powder and the liquid catalyst according to the manufacturer's directions. This mixture acquires a putty-like consistency and can be rolled into a strip of appropriate length to extend over and beyond the fracture site. By pressing against the teeth and extending the gel toward and over the gums, while holding the fragments in apposition, the acrylic compound is made to embrace the gums snugly. After a few minutes, the compound is trimmed with a scalpel around the teeth at the level of the gums, thus permitting the teeth to protrude through the splint.

When the acrylic compound has hardened sufficiently to permit manipulation without distortion, the splint is removed from the

---

Dr. Estrada is a small animal practitioner in West Haven, Conn.

\*Acralite Fastcure, made by Acralite Co. Inc., New York, N.Y., is supplied as a kit (Multipak) which contains enough material for 50 splints.

mouth and the edges trimmed with scissors. The material must not be allowed to harden completely in the mouth because it will become more difficult to remove and trim.

Once satisfactorily trimmed, the splint is allowed to harden another 15 or 20 minutes, then placed in the mouth. Further rounding of edges may be advisable for comfort of the patient; this can be done with a file and fine sandpaper. Any thin or weak spot can be built up by alternately adding powder and liquid to the area until the desired thickness is obtained.

When polishing equipment is not available, a smoother surface may be attained by adding more compound to the outer surface of the splint and smoothing it while it is still moist. Smoothing is done with the finger, covered with a piece of cellophane from which the starch has been removed previously by washing it with warm water.

The splint is fixed to the jaw in the manner described by Thomas *et al.*<sup>1</sup> or, as we prefer, by passing the stainless steel wire through the splint and the jawbone and tying on the external side of the splint. A blunt hypodermic needle passed through the holes drilled through the splint and the jaw bone make this procedure easier. The terminal ends of the wire may be covered

by dusting a small amount of powdered acrylic compound and adding a drop of the catalyst.

#### Discussion

The method described is essentially the same as that of Thomas *et al.*<sup>1</sup> From the point of view of a dental technician, the finished splint may be inferior when made by the method here described. However, results have been satisfactory. This technique has the advantage of being less time consuming, more economical, and within the scope of the practitioner who may not have access to a dental laboratory to give him the fast service required.

Aftercare consists of flushing the mouth daily with a mild antiseptic solution to remove food particles from under the splint, and systemic administration of antibiotics. If gingivitis is present on removal of the splint, the gums should be painted with antiseptic. Complete healing of gums usually occurs within a few days.

#### References

- <sup>1</sup>Thomas, Daniel L., McAllister, Charles R., and Dawe, John R.: A Technique of Repair of Multiple Mandibular Fractures in a Dog. J.A.V.M.A., 132, (Feb. 15, 1958): 161-162.

---

### Erysipelas Serum Affects Penicillin

The reduced effect of procaine penicillin G *in vitro* against beta-hemolytic streptococci, by 3 of 32 swine erysipelas and normal serum samples, was thought to be due to accidental presence of penicillinase in the serum. When in practice both serum and penicillin are to be given simultaneously, they should be injected at different sites.—Sborn. *Pathofysiol. Trav. Vyz.*, 7, p. 219; *abstr.* 3718 in *Vet. Bull.*, 29, 1959.

### Effect of Testosterone on Dog Diseases

Studies in Italy with 4-chlortestosterone were carried out on 18 dogs with purulent dermatitis, leptospiral jaundice, and acute inflammation of the respiratory tract. No significant changes in nitrogen metabolism were observed. There was a more rapid activation of the metabolic processes manifested by cicatrization of skin lesions and resolution of acute inflammatory processes.—*Atti. Soc. ital. sci. vet.*, 12, (1959): 733; *abstr.* 3968 in *Vet. Bull.*, 29, 1959.

# Eye Changes in Beagles

## Following Intravenous Injection of Radium<sup>226</sup>

Carl E. REHFELD, D.V.M.  
Betsy J. STOVER, PH.D.  
Glenn N. TAYLOR, D.V.M.  
David R. ATHERTON, B.S.  
Gottlieb SCHNEEBELI

AN EXTENSIVE comparative study of chronic effects of 5 radionuclides which deposit mainly in the skeleton is being made with young adult Beagles. The metabolism of radium<sup>226</sup> in Beagles, and the relationship of the dose levels to the maximum permissible level for man, have been reported previously.<sup>1</sup>

The study reported here involved 72 dogs, each of which was given a single intravenous injection of radium<sup>226</sup> at the following dose levels (12 dogs/each dose level): 10.0, 3.2, 1.1, 0.34, 0.17, and 0.057  $\mu$ c.\* per kilogram of body weight. The injections were given during a period of several years. Skeletal changes constituted the principal long-term effects of small amounts of radium<sup>226</sup> incorporated into the body, but in the dog we have observed ocular changes\*\* before minimal skeletal changes occur.

It has been apparent that ocular changes vary in degree according to both dosage and length of exposure.<sup>2</sup> Initially, the time devoted to this eye study was limited primarily to observations of the iris, since this structure in dogs is similar to that in

man. More recent study has included the fundus of the eye where equally striking changes have occurred, although the structure primarily affected, the tapetum lucidum, is not present in man. It appears now that this structure, which is sandwiched

TABLE 1—Relative Radium<sup>226</sup> Concentrations in Beagles

Tissue	Days after injection		
	1,091	1,220	1,288
Iris .....	4.7	16.0	10.0
Retina + choroid .....	3.8	11.0	6.5
Lens + cornea .....	0.9	0.2	.....
Fluid .....	0.06	0.05	0.07
Sclera .....	.....	0.5	0.9
Whole eye .....	1.0	1.0	1.0
Plasma .....	0.014	0.061	0.035

between choroid and retina, has detectable changes earlier than does the iris and is likely to be a more sensitive organ for relating damage due to the presence of radium<sup>226</sup>.

The alterations of the iris were visible grossly only in those dogs that had brown irises. The iris obtains its color from the presence of the organic pigment, melanin, deposited in some of the cells of the anterior leaf of the iris. If little of this pigment is present in the anterior leaf, light passes through translucent connective tissue and reflects from a much heavier deposit of pigment in the posterior leaf of

From the radiobiology laboratory of the University of Utah, Salt Lake City, where Dr. Rehfeld is head of the clinic section, Dr. Stover is head of the chemistry section, Dr. Taylor is associate veterinarian, Mr. Atherton is research associate in the chemistry section, and Mr. Schneebeli is research assistant in the department of anatomy.

This work was supported in part by the U.S. Atomic Energy Commission.

\*One microcurie ( $\mu$ c.) is that amount of a radionuclide which undergoes  $3.700 \times 10^4$  disintegrations per second.

\*\*First noticed by R. C. Bay, formerly of the Radiobiology Laboratory, University of Utah, Salt Lake City.

the iris, giving the iris a blue color. In the dogs studied, the disappearance of the pigment was progressive, beginning near the margin of the pupil and moving outward to the margin of the iris distal to the pupil.

The rate and character of the ocular changes varied considerably with the radium<sup>226</sup> dosage. Alterations in the tapetum lucidum have been noticed as early as 48 days, and in irises by 100 days, in the dogs given doses of 10.0  $\mu\text{c.}/\text{kg.}$  Lesions were eventually apparent in the dogs given doses as low as 0.17  $\mu\text{c.}/\text{kg.}$ , but they have not yet been visible in dogs that were given the lowest dosage. Although evidence is insufficient for definite conclusions, there appears to be no loss of visual acuity, but some photophobia seems to occur.

Blood plasma and one eye from each of 8 dogs given the highest doses, and which lived 908 to 1,368 days after injection, were analyzed for radium<sup>226</sup>. Since the amounts measured ranged from 10 to 100  $\mu\mu\text{c.}$ , radium<sup>226</sup> in the ashed sample was determined by de-emanation, using a gas scintillation counter.<sup>3</sup> Inasmuch as the uncertainty of the method is about  $\pm 2 \mu\mu\text{c.}$ , samples from dogs given smaller doses were not measured.

For all 8 dogs, eye concentration was significantly greater than that of plasma. The average eye-to-plasma ratio was 36:1, with a range of 14:1 to 76:1. Average concentration in eyes was  $24 \times 10^{-6}$  per cent injected radium<sup>226</sup>/Gm.; in plasma, it was  $0.65 \times 10^{-6}$  per cent injected radium<sup>226</sup>/Gm. In addition, 3 eyes, which contained 30, 10, and 15  $\times 10^{-6}$  per cent injected radium<sup>226</sup>/Gm., were dissected and the parts were analyzed separately. From the results (table 1), it was apparent that the highest radium<sup>226</sup> concentrations were found in the iris and the retina + choroid, which were the areas where the changes occurred.

The pigmented parts of bovine, rabbit, and human eyes have been found to contain barium and strontium in higher concentration than other parts of the eye.<sup>4</sup> Thus, three alkaline earth elements, strontium, barium, and radium, have been found in pigmented portions of eyes. Perhaps calcium is the normal cation and the others are incorporated from the blood by heterogeneous ion exchange.

From the data (table 1), we can make some estimates on order of magnitude of radiation dose. If we assume that radi-

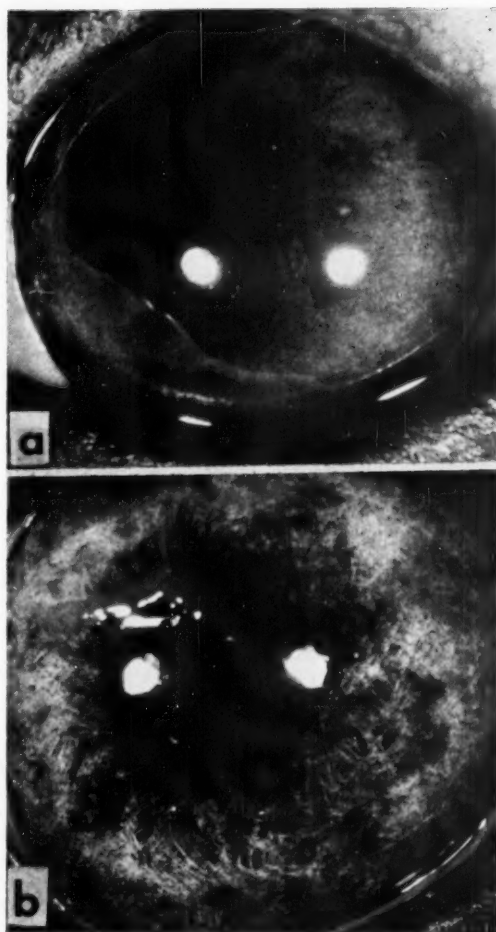


Fig. 1—The normal iris of a control Beagle is shown (a). By contrast, note (in b) the marked reduction of pigment in the iris of a Beagle 42 months after injection of 9.48  $\mu\text{c.}$  of radium<sup>226</sup> per kilogram of body weight.

um<sup>226</sup> concentration in the eye is uniform and constant, and that none of the radioactive decay products are retained, we obtain, as a lower limit, the dose rate  $6 \times 10^{-3}$  rad/day.<sup>†</sup> The rate is roughly 0.06 rad/day for the pigmented areas, which are thick compared with the radium<sup>226</sup> alpha particle

<sup>†</sup>A rad is a unit of radiation dose and is defined as the dissipation of 100 ergs/Gm. of tissue. In comparison, the roentgen unit for x and gamma rays is defined as the dissipation of 84 ergs/Gm. of air.



range. Thus, the cumulative dose to the retina + choroid is at least 3 rad at the time initial changes are observed.

Injected radium<sup>226</sup> is retained in the pigmented portions of the canine eye for long periods, apparently resulting in a direct radiation effect. The authors have found no information of similar changes occurring in the human eye.

#### Summary

Marked changes in the pigmented parts of the eyes of Beagles have been observed within one year after injection of radium<sup>226</sup>. Since the degree of alteration was greater both for longer intervals and for higher doses, the changes apparently resulted from the radium. Presumptive evi-

dence of a direct radiation effect was obtained, for analyses showed radium<sup>226</sup> concentration in eyes to be greater than that in plasma, and greater in pigmented than in nonpigmented parts of eyes.

#### References

- <sup>1</sup>Van Dilla, M. A., Stover, B. J., Floyd, R. L., Atherton, D. R., and Taysum, D. H.: Radium (Ra<sup>226</sup>) and Radon (EM<sup>222</sup>) Metabolism in Dogs. *Radiation Res.*, 8, (1958): 417-437.
- <sup>2</sup>Rehfeld, C. E.: Annual Progress Report of the Radiobiology Laboratory, University of Utah (March 31, 1956): 20-21.
- <sup>3</sup>Van Dilla, M. A., and Taysum, D. H.: Scintillation Counter for Assay of Radon Gas. *Nucleonics*, 13, (1955): 68-69.
- <sup>4</sup>Sowden, Eleanor, and Pirie, Antoinette: Barium and Strontium Concentrations in Eye Tissue. *Biochem. J.*, 70, (1958): 716-717.

### Information Wanted Regarding Certain Eye Changes and Bone Tumors in Beagles

Obvious eye changes have occurred in Beagles following administration of certain radionuclides — an observation important to human health and its relationship to radioactivity.

These eye changes consist essentially of decreased pigmentation of the iris and loss of the refractile nature of the tapetum lucidum where this membrane is ordinarily an iridescent blue-green. It is possible that other toxic agents could cause similar changes, and knowledge of such agents could help to characterize the changes.

There appears to be an extremely low incidence of bone tumor formation in Beagles. Only one confirmed case of naturally occurring bone tumor is known in this laboratory, but over 60 have occurred in Beagles after administration of certain radioactive isotopes. It is important that a comparative incidence between naturally occurring and experimentally produced bone tumors in Beagles be made.

Written and pictorial evidence of such eye changes and bone tumors occurring in Beagles will be appreciated and acknowledged in any published material utilizing this information. Please send information to C. E. Rehfeld, D.V.M., Clinic Section, Radiobiology Laboratory, University of Utah, Salt Lake City.

*The Comparative Effects of Chlortetracycline*

*and Oxytetracycline in the Treatment of*

# Turkeys with Ornithosis

R. W. MOORE, D.V.M., M.S.  
J. R. WATKINS, D.V.M., M.S.

CONSIDERABLE WORK has been done to evaluate chlortetracycline\* as a therapeutic drug for ornithosis in turkeys, but no reports on the value of oxytetracycline\*\* were found in the literature. This study was designed to compare therapeutic results of oxytetracycline (OTC) and chlortetracycline (CTC). The aim of therapy is not only to prevent deaths, but also to help eliminate the agent from the tissues so a group of infected birds can be processed without danger of human infection. Various levels of CTC have been studied as treatment regimes. CTC has been used to treat a natural field case with satisfactory results.<sup>2</sup> Others, using the same treatment program but substituting OTC have not had satisfactory results.

The effect of various antibiotics on 2 different strains of ornithosis agents in the chicken embryo has recently been reported.<sup>3,4</sup> Both reports coincide rather closely for all antibiotics, and both reports showed that it required a higher level of CTC than of OTC to equally protect the embryo. Others<sup>5,6</sup> have also reported the effect of antibiotics on the agent of ornithosis in the chicken embryo.

## Materials and Methods

Eight-week-old turkeys were used in all studies. Large white turkeys were obtained

from a commercial hatchery at 1 day of age and were raised in batteries.

*Experiment 1.*—The purpose of the first experiment was to compare the activity of OTC and CTC. This was done in 2 separate trials. In both trials, 7 groups of 10 turkeys each were placed in rooms of a security-type laboratory and inoculated intratracheally with 0.25 ml. of chorioallantoic fluid containing the Jo strain of the ornithosis agent. Two groups of noninfected controls were kept in each trial. At the third day after inoculation, the birds were showing signs of disease and were given the following treatments: (1) standard ration (infected controls); (2) 200 Gm. of CTC/ton in a standard ration; (3) 200 Gm. of OTC/ton in a standard ration; (4) 200 Gm. of CTC/ton in a 0.5 per cent calcium diet\* for 5 days, then 1 per cent calcium diet for remainder of treatment period; (5) 200 Gm. of OTC/ton in a 0.5 per cent calcium diet for 5 days, then 1 per cent calcium diet for remainder of treatment period; (6) 200 Gm. of OTC/ton with 0.34 per cent terephthalic acid in a standard diet; (7) 200 Gm. of OTC/ton with 0.34 per cent of terephthalic acid in a standard diet; (8) noninfected controls with standard ration; (9) noninfected controls with 0.34 per cent terephthalic acid in a standard ration.

Numbered blood samples were taken, and serum-antibiotic levels\*\* were determined. Also at various periods the indirect complement-fixation serum titers were determined. All feeds were mixed in sufficient

The authors are assistant professors in the Department of Veterinary Microbiology, A. & M. College of Texas, College Station.

This work was conducted in cooperation with and supported in part by the Animal Disease and Parasite Research Division, Agricultural Research Service, USDA, and by Charles Pfizer and Co., Inc., Brooklyn, N.Y.

\*Aureomycin (chlortetracycline) is produced by American Cyanamid Co., New York, N.Y.

\*\*Terramycin (oxytetracycline) is produced by Charles Pfizer and Co., Terre Haute, Ind.

\*The ration consisted of corn, soybean oil meal, corn distiller soluble, fish meal, adequate vitamins, and minerals except the addition of calcium was controlled.

\*\*The authors thank Dr. K. E. Price of Charles Pfizer and Co. for the serum-antibiotic level determinations.

quantities to permit feeding the birds for the treatment period, and samples were taken for analysis.

All birds were treated for a 3-week period at which time they were given a standard ration for 3 days. At the end of the experimental period, all birds were necropsied. Lesions were recorded and tissue suspensions (spleen and kidneys) were made in nutrient broth. Tissue suspensions from each bird were immediately inoculated into 5, 7-day-old chicken embryos via the chorioallantoic cavity and intraperitoneally into 3 white mice. Samples of bones were taken from each group for histopathologic study.

The inoculated white mice were placed in individual cages and observed for 7 days; then they were necropsied and their spleens were collected. Spleen tissue suspensions were reinoculated intraperitoneally into 3 white mice. If no deaths occurred, this procedure was repeated 3 times before a sample was considered negative for ornithosis.

The tissue suspensions inoculated into the chicken embryos were treated with 25 mg. of streptomycin/ml. of inoculum. The

eggs were candled daily, deaths were recorded, and chorioallantoic fluid was harvested. At the end of 9 days, if no deaths had occurred, 2 eggs from each group were chilled, then amnioallantoic fluid was harvested and reinoculated into 5, 7-day-old chicken embryos. If no deaths occurred on this passage, the tissue suspension was considered negative for ornithosis.

*Experiment 2.*—This experiment was designed to find the effective level at which OTC would prevent the reisolation of the ornithosis agent from the tissues following 3 weeks of treatment. Four groups of 20 turkeys each were placed in a security-type laboratory and inoculated intratracheally with 0.25 ml. of chorioallantoic fluid containing the Jo strain of ornithosis. On post-inoculation day 4, signs of disease were observed and the groups were treated as follows: (1) standard ration (infected controls); (2) 400 Gm. of OTC/ton of all-mash ration; (3) 600 Gm. of OTC/ton of all-mash ration; (4) 800 Gm. of OTC/ton of all-mash ration.

The birds remained on treatment for 3 weeks; they were then given a standard

TABLE 1—The Comparative Value of Chlortetracycline and Oxytetracycline against the Ornithosis Agent with and Without Antibiotic Enhancers, Trial 1

Ration and treatment	Loss (%)	Virus, isolation from survivors		Pericarditis		Air sac		Liver exudate		Lungs	Diarrhea Yellowish
		Eggs	Mice	Residual	Active	Slight	Severe	Slight	Severe	Congestion and edema	
(Infected controls) None	70	1 of 3 birds (8)*	1 of 3 birds (8)	.....	9 of 10 birds	.....	7 of 10 birds	4 of 10 birds	1 of 10 birds	3 of 10 birds	5 of 10 birds
Standard Chlortetracycline	0	Neg.	Neg.	1 of 10 birds	.....	1 of 10 birds	.....	.....	.....	.....	.....
Standard Oxytetracycline	0	1 of 10 birds (2)	1 of 10 birds (2)	.....	1 of 10 birds	2 of 10 birds	.....	.....	.....	.....	.....
Low calcium Aureomycin	0	Neg.	Neg.	.....	.....	.....	.....	.....	.....	.....	.....
Low calcium Terramycin	0	1 of 10 birds (2)	1 of 10 birds (2)	5 of 10 birds	.....	3 of 10 birds	.....	.....	.....	.....	.....
Standard Terephthalic acid chlortetracycline	0	Neg.	Neg.	2 of 10 birds	.....	1 of 10 birds	1 of 10 birds	.....	.....	.....	.....
Standard Terephthalic acid oxytetracycline	0	1 of 10 birds (3)	1 of 10 birds (3)	3 of 10 birds	1 of 10 birds	2 of 10 birds	2 of 10 birds	.....	.....	.....	.....
Standard Noninfected controls	0	Neg.	Neg.	.....	.....	.....	.....	.....	.....	.....	.....
Low calcium Noninfected controls	0	Neg.	Neg.	.....	.....	.....	.....	.....	.....	.....	.....

\*Numbers in parentheses are the numbers of birds.

**TABLE 2—The Comparative Value of Chlortetracycline and Oxytetracycline against the Ornithosis Agent with and Without Antibiotic Enhancers, Trial 2**

Lot No.	Av. wt. gain (lb.)	Ration and treatment	Percentage loss	Virus isolation from survivors in chicken embryos
1	1.8	Infected controls	20	1 of 8
2	3.5	Standard and chlortetracycline	0	0 of 10
3	3.9	Standard and oxytetracycline	0	0 of 10
4	3.7	Low calcium and chlortetracycline	0	1 of 10
5	3.6	Low calcium and oxytetracycline	0	0 of 10
6	3.9	Standard, terephthalic acid, chlortetracycline	0	1 of 10
7	3.1	Standard, terephthalic acid, oxytetracycline	0	1 of 10

ration for 3 days. Following the experimental period, all birds were necropsied and a tissue suspension was made from the spleen and kidney of each bird, and inoculated into 5, 7-day-old chicken embryos via the chorioallantoic cavity. At the time of necropsy, blood was collected and serum-antibiotic levels were measured. The eggs were candled daily and deaths recorded. Amnioallantoic fluid (AAF) was harvested from egg embryos that died. After 9 days, if deaths had not occurred in a group, 2 eggs were chilled and AAF was harvested.

The harvested material was re-inoculated into 5, 7-day-old chicken embryos.

## Results

**Experiment 1.**—In this experiment CTC in both trials prevented isolation of the agent from the tissues of the birds at the 200 Gm./ton level (table 1, 2). Oxytetracycline did not impair isolation of the agent from birds after a treatment period of 3 weeks at 200 Gm./ton in either a standard ration, low-calcium ration, or when combined with terephthalic acid. Active lesions were observed in the birds treated with OTC, whereas only residual lesions were present in those tested with CTC. Although OTC was unsatisfactory as a therapeutic drug, it was as effective as CTC in preventing deaths and subduing clinical signs.

A low-calcium diet caused higher serum-antibiotic levels much faster than either terephthalic acid or standard diet, and terephthalic acid resulted in higher levels than the standard diet (table 3). As the treatment period progressed, differences in serum-antibiotic levels decreased and, by the third week, levels were approximately the same in birds receiving the standard ration as the antibiotic "enhancers." There was no consistent difference between serum

**TABLE 3—Average Blood Levels Attained at Various Times with and Without Antibiotic Enhancers — Trial 1**

Lot	Antibiotic enhancer	Antibiotic treatment	Antibiotic serum levels in $\mu\text{g./ml.}$		Terephthalic acid in ration (%)	Calcium in ration (%)
			5th day	18th day		
1	.....	None	NDL*	NDL*	.....	2.3
2	Standard	Chlortetracycline	NDL*	0.093	.....	2.3
3	Standard	Oxytetracycline	NDL*	0.229	.....	2.3
4	Low calcium	Chlortetracycline	0.160	0.080	.....	0.45-1.0
5	Low calcium	Oxytetracycline	0.090-0.156	0.121	.....	0.45-1.0
6	Terephthalic	Chlortetracycline	0.035-0.041	0.084	0.34	2.4
7	Terephthalic	Oxytetracycline	NDL*	0.177	0.34	2.4
8	Standard	None	NDL*	NDL*	.....	2.3
9	Low calcium	None	NDL*	NDL*	.....	2.3
Trial 2						
9th day						
1	.....	None	.....	NDL*	.....	.....
2	Standard	Chlortetracycline	.....	0.049	.....	.....
3	Standard	Oxytetracycline	.....	0.075	.....	.....
4	Low calcium	Chlortetracycline	.....	0.126	.....	.....
5	Low calcium	Oxytetracycline	.....	0.130	.....	.....
6	Terephthalic	Chlortetracycline	.....	0.110	.....	.....
7	Terephthalic	Oxytetracycline	.....	0.090	.....	.....
8	Standard	None	.....	NDL*	.....	.....
9	Low calcium	None	.....	NDL*	.....	.....

\*NDL—nondetectable level.

**TABLE 4—Summary of the Effect of Various Levels of Oxytetracycline on the Isolation of the Ornithosis Agent**

Treatment level	Antibiotic serum level in $\mu\text{g./ml.}$ after 18 days of treatment	Isolation total*
Controls — none	NDL	2/10
400 Gm./ton	0.108-0.161	4/20
600 Gm./ton	0.230	0/20
800 Gm./ton	0.392	0/20

NDL—Nondetectable level; \*No. from which isolated/No. birds cultured.

levels of the 2 antibiotics regardless of the type of treatment.

When the bones were examined histopathologically, no changes were detected in the birds from any of the groups.

All turkeys serums had some degree of reaction in the indirect complement-fixation test and were of sufficient magnitude to show that infection was achieved.

*Experiment 2.*—The ornithosis agent was isolated from birds given feed containing OTC at a concentration of 400 Gm./ton for 3 weeks, but not from those which had received 600 or 800 Gm./ton (table 4).

#### Discussion

Although OTC has been reported to be more effective than CTC against the agent of ornithosis when assayed in chicken embryos, this was not true in adult turkeys infected with the Jo strain. It is difficult to explain this phenomena, but one might postulate that CTC diffuses intracellularly to a greater degree than does OTC.

Of the 2 methods used to increase serum-antibiotic levels, the low-calcium diet permitted a greater rise in the first 5 days and there was little if any difference in the total serum-antibiotic levels attained. Regardless of the treatment, all blood levels were approximately equal following 3 weeks of treatment.

One point shown by this study was the

equivalent value of chicken embryos to mice as a method of isolating the Jo strain of ornithosis agent.

#### Summary

The comparative effect of chlortetracycline (Aureomycin) and oxytetracycline (Terramycin) at different levels were measured in 8-week-old turkeys inoculated with the Jo strain of ornithosis.

Oxytetracycline was unsatisfactory for therapy at a 200 Gm./ton level whereas this dosage of chlortetracycline did eliminate the agent from the tissues. Oxytetracycline prevented the isolation of the organism when fed at a rate of 600 Gm./ton in the feed for 3 weeks.

Of the 2 antibiotic "enhancers" used, a low-calcium diet was most effective, but it had no effect on the efficacy of treatment under conditions of this study. After 3 weeks of treatment, neither of the drugs was enhanced.

#### References

- <sup>1</sup>Davis, D. E., and Delaplane, J. P.: The Effect of Chlortetracycline Treatment of Turkeys Affected with Ornithosis. *Am. J. Vet. Res.*, 19, (Jan., 1958): 169-173.
- <sup>2</sup>Davis, D. E., Watkins, J. R., and Delaplane, J. P.: The Treatment of Turkey Ornithosis in a Farm Flock. *Southwest. Vet.*, 10, (Spring, 1957): 223-226.
- <sup>3</sup>Davis, D. E.: The Activity of Several Antibiotics Against Turkey Ornithosis Virus in Chicken Embryos. *Southwest. Vet.*, 11, (Fall, 1957): 47-48.
- <sup>4</sup>Gale, C.: The Susceptibility of a Turkey Ornithosis Virus of Low Virulence to Antibiotics. *Avian Dis.*, 3, (May, 1959): 170-174.
- <sup>5</sup>Gogalak, F. M., and Weiss, F.: The Effect of Antibiotics on Agents of the Psittacosis — Lymphogranuloma group. II. The Effect of Aureomycin. *J. Infect. Dis.*, (1950): 264.
- <sup>6</sup>Hurst, E. W., Peters, J. M., Melvin, P.: The Therapy of Experimental Psittacosis and Lymphogranuloma Venereum. I. The Comparative Efficacy of Penicillin, Chloramphenicol, Aureomycin, and Terramycin. *Brit. J. Pharmacol.*, 5, (1950): 611.

### Value of Concomitant Antibiotic-Steroid Therapy

Prophylactic administration of antibiotics to hospitalized dermatologic patients given steroids does not decrease and may increase incidence of staphylococic infection. Infection occurred in 14 of 31 patients given both drugs, 5 of 42 given steroids alone, 3 of 41 given antibiotics alone, and 5 of 192 given neither steroids nor antibiotics.—*Mod. Med.*, 28, (1960): 127.



# Editorial

## Decline in Farm Population Presages Character of Tomorrow's Rural Practice

In rural veterinary practice, volume of practice is related closely to the number of livestock in the practice area. Type of practice is related closely to the number of people on farms.

A reduction in number of farmers, considering present mechanization facilities, generally will be accompanied by increases in acreage and livestock per farm. As a result, there will be fewer farms for each veterinarian to service, but he will be able to devote an increasingly greater share of his time to veterinary medicine and less to wasteful pursuits, such as driving his car. The smaller number of farms, larger and with more livestock, will be economically more stable than formerly and in a better position to utilize professional veterinary services. Fewer farmers with larger livestock holdings will encourage contract veterinary service. As a result, contract practices can be expected to become the dominant type of rural veterinary practice in the future, although there will be continued demand for veterinary services by smaller farm units and for emergency work.

The following report (based on USDA release 811-60) of declining farm population should not be construed as an indication of a diminishing need for rural practicing veterinarians, but rather as an indication of an expanding need for more veterinary service flexible enough to cope with changing conditions.

### Decline in Farm Population

Farm population has been declining for many years. In 1933, there were 32.4 million people on farms. This was about 26 per cent of the total population.

Farm population dropped by over 7 million during the next 17 years—an average decline of over 400,000 per year. By April 1950, the farm population was 25.1 million, about 17 per cent of the total population.

Between 1950 and 1959, the farm population continued to decline and, in April 1959, there were 21.2 million farm people. This was 12 per cent of the total population of the United States.

Year	Total U.S. population	Farm population	
		(No.)	(%)
1910	91,885*	32,077*	34.9
1920	106,089	31,974	30.1
1930	122,775	30,529	24.9
1940	131,820	30,547	23.2
1950	151,132	25,058	16.6
1959	176,264	21,172	12.0

\*In thousands.

One hundred years ago, farm people made up an estimated 65 per cent of the U.S. population. Now nonfarm people are 88 per cent of the population.

### Why Fewer Farmers?

Average productivity of U.S. farm workers since 1940 alone has increased more than in the previous 120 years. In 1820, each farm worker produced enough to meet the needs of 4 persons, and by 1940, this figure had risen to 11. But by 1958, a farm worker produced enough for the needs of 23 persons.

Since 1940, farm worker productivity has more than doubled, total output of farm products has increased about 52 per cent, and the U.S. population has increased about 34 per cent.

The technological revolution in agriculture obviously made it impracticable for all the 30 million farm people of 1940 or the 27 million of 1947 to remain in farming.

Expansion of industry and the unparalleled growth of military and research installations in rural areas all over the nation have made the transition from farm to nonfarm life far easier.

The automobile and modern roads have greatly lengthened the commuting range for rural people and have given them a chance to combine urban jobs with rural homes.

Lure of a nonfarm job has been great because the average income of farm people

is characteristically less than that of non-farmers. The table illustrates this:

	1940	1950	1958
Per capita income of farm people from all sources	\$262	\$ 838	\$1,043
Per capita income of nonfarm people from all sources	\$685	\$1,585	\$2,073

Living conditions on farms have improved steadily in recent years. The level-of-living index of farm operator families rose from 100 in 1945 to 122 in 1950. In 1956, it reached a record of 145. This index is based on value of farm products sold and possession of automobiles, electricity, and telephones.

Here is a comparison table:

Date	Percentage of farm families reporting				
	Tele-phones	Auto-mobiles	Water	Tele-vision	Freez-ers
April, 1950	38	63	43	3	12
Fall, 1954	47	71	59	36	32
Winter, 1956	52	74	64	53	39
1958	60 (July)			68 (Jan.)	

#### What the Future Holds

Farm population will remain as large as incomes from agriculture or a combina-

tion of agriculture and off-farm work permits.

Any program that limits or reduces production—through acreage or marketing quotas or soil bank payments for taking land out of production—lessens farm labor requirements. Need for tenants drops. The small-scale farmer, and some medium-scale operators, need off-farm work to keep fully employed.

The farmers with a substantial investment in machinery also is affected by production limitations. He must keep the machinery busy to make it pay. To do so, he seeks additional land and increases the physical size of his operation. Many small farms that change hands under these conditions will not continue as complete operating units but will become part of another farm.

All this does not mean the end of a family farm or any lessening of its importance. It means simply that a family will tend to operate a larger acreage with full mechanization than with horse and mule power. The increase in size of farms that has been taking place will probably continue for some years. The farm population will become smaller than it is now before stabilizing.

## June 30 Is Deadline for Humane Slaughter

After June 30, 1960, packers who sell meat to federal agencies must provide a certificate stating that all their meat products are derived from carcasses of animals that have been humanely slaughtered. According to the law, the government agency that purchases meat will require this certification.

The Meat Inspection Division of the USDA has the responsibility of identifying carcasses that have been humanely slaughtered.

The Department of Agriculture does not endorse any particular stunning or immobilizing device. Acceptability of any instrument or device is dependent on its ability to produce animal insensibility within the requirements of the law.

Three methods qualifying as humane slaughter techniques are mechanical stunning, electrical stunning, and immobilization with carbon dioxide.

Basic requirements for any packer utilizing humane slaughter equipment are (1) delivery of calm animals to stunning or immobilizing equipment, (2) proper functioning of all restraining and immobilizing equipment, (3) skilled and willing personnel, and (4) effective animal restraint.—*Nat. Provisioner*, 142, (1960): 47.

## from the *Research Journal*

### **Eimeria and Trichostrongylus in Dairy Calves**

Two replicate tests, using 8 calves each, were undertaken to compare results of concurrent infections with coccidia and *Trichostrongylus colubriformis* attacking the same general region of the intestines. Group 1 calves were given 3,000 oocysts of coccidia per pound of body weight; in group 2 the oocysts were given at the same rate, plus 70,000 of the larvae; group 3 calves were given one half the number of both that were given in group 2; and group 4 was composed of untreated controls.

In both tests, the combination of *Eimeria* spp. and the nematodes was more destructive than the coccidia alone, with 1 calf in group 2 of test 1 and both calves in group 2 of the second test dying as a result of the mixed infections. In test 1, the group 3 calves were diarrheic for about one third more days than those in group 1 and for nearly 3 times as many days as in group 2. Group 3 calves had high oocyst counts on a

few more days than did the calves given the full amounts of both. By the sixth week, they also made the poorest total weight gains, and both died after being placed on pasture at the end of the test. In test 2, by the time of the deaths of group 2 calves on the 20th and 21st days, they had high daily oocyst counts on 45 per cent of the days as compared with 17 per cent and 37 per cent in groups 1 and 3, respectively. As in the first test, group 3 calves made the poorest weight gains of the ones surviving until the sixth week. The presence of the nematodes affecting the same areas of the intestine may have had a synergistic effect on the development of the coccidia. — [L. R. Davis, H. Herlich, and G. W. Bowman: *Studies on Experimental Concurrent Infections of Dairy Calves with Coccidia and Nematodes. IV. Eimeria spp. and the Small Hairworm, Trichostrongylus colubriformis.* *Am. J. Vet. Res.*, 21, (March, 1960): 188-194.]

### **Eimeria and Strongyloides in Dairy Calves**

Two tests were conducted to compare results of concurrent infections with coccidia (*Eimeria* spp.) and a nematode (*Strongyloides papillosus*) when both attack the same region of the intestines of young dairy calves. In the first test, the calves were given either coccidia, worms, one half the numbers of coccidia and worms, or were left as untreated controls. Three calves were used in each of the 4 groups. In test 2, the surviving calves were inoculated or left as controls, as in the first test. In test 1, the calves that had been given both kinds of parasites showed high oocyst counts on twice as many days as those that were given only coccidia, even though the first group had received only half as many oocysts in the infections. This suggested that the damage produced by the

nematodes may have enhanced the penetration and development of the coccidia. In test 2, the results of the oocyst output were reversed from test 1, possibly because of greater resistance to reinfection developed in the group with the heavier infection in test 1. The average weight gains were nearly the same for all 4 groups during the first test. In test 2, the surviving calves in the mixed infection group gained about one third more than any other group. — [L. R. Davis, H. Herlich, and G. W. Bowman: *Studies on Experimental Concurrent Infections of Dairy Calves with Coccidia and Nematodes. III. Eimeria spp. and the Threadworm, Strongyloides papillosus.* *Am. J. Vet. Res.*, 21 (March, 1960): 181-187.]

### **Correction of Cobalt Deficiency in Cattle**

In 11 experiments involving 246 cattle grazing on pastures known or suspected to be deficient in cobalt, a single treatment with a 20-Gm. pellet was effective in cor-

recting subclinical and gross cobalt deficiency. Response to treatment was highly significant ( $P < 0.01$ ) in 2 experiments and, when all 11 experiments were con-

sidered as replicates of cobalt pellet versus no treatment, the difference in weight-gain in favor of treatment was significant (P between 0.01 and 0.02). Clinically affected animals, near death, responded quickly, making gains of up to 164 lb. in 6 weeks after treatment.

The efficiency of cobalt pellet treatment in raising the levels of liver-vitamin B<sub>12</sub> was studied. The levels increased quickly in treated cattle and in general reached levels 2 to 3 times higher than controls. The high levels were maintained throughout the experiments. Analysis of results showed positive correlation between liver B<sub>12</sub> levels and weight gain in the early months, but not in the later months of the experiments. This is attributed to inadequate intake of cobalt from pastures by untreated animals in the early months, whereas intake appeared to be adequate for metabolic requirements in the later months.

Suggestions are made for interpretation of liver-vitamin B<sub>12</sub> levels in cattle. When the level is below 0.1 µg. per gram, cattle generally show signs of, and may die of, cobalt deficiency. Cattle with levels between 0.10 and 0.30 µg./Gm. may appear healthy

and make good, but not optimal, weight gains. Such animals in one experiment gained 1.46 lb. per day, whereas treated animals gained 1.62 lb. per day (a highly significant difference). Cattle with levels above 0.30 µg./Gm. are not considered cobalt deficient.

Calves treated before 6 weeks of age did not retain the pellets satisfactorily. In cattle treated when 2 to 20 months old, 87 per cent of pellets were retained for at least 4 to 7 months. Retention rate was lower in lactating dairy cows, but interim results indicated that increased butterfat production resulting from treatment more than justified repeated treatment. Retention of pellets was determined by x-ray fluoroscopy or by necropsy.

The specifications of, and method of administering the pellets are described.

Attention is drawn to the lack of specific signs of cobalt deficiency in cattle, the only sign regularly observed being poorer growth of untreated cattle.—[K. D. Skerman, A. K. Sutherland, M. W. O'Halloran, J. M. Bourke, and B. L. Munday: *The Correction of Cobalt or Vitamin B<sub>12</sub> Deficiency in Cattle by Cobalt Pellet Therapy*. *Am. J. Vet. Res.*, 20, (Oct., 1959): 977-984.]

## New Books

### Regulatory Veterinary Medicine

This paper-bound handbook is an excellent compilation of reports resulting from a symposium sponsored jointly by the Agricultural Research Service, the U. S. Livestock Sanitary Association, and the AVMA. The symposium was held at the 95th Annual Meeting of the AVMA in Philadelphia.

One of the purposes in preparing this publication was to provide a readily available source of information on the subject of regulatory veterinary medicine that could be used for teaching and reference purposes in colleges of veterinary medicine and departments of animal pathology.

Containing informative reports from more

than 30 contributors, this book is essentially a response to many requests for information on the causes underlying regulatory veterinary medicine, the development of various types of projects, and results obtained thus far or in prospect of fulfillment. The requests have been largely from the veterinary profession; others have come from many branches of industry, importers and exporters, college officials and students, and many other sources.—[*Regulatory Veterinary Medicine*. Agric. Handbook No. 167. 217 pages; well-illustrated; Superintendent U. S. Government Printing Office, Washington 25, D.C. 1960. Price \$1.00.]



# News

## Explorer Scouting in Veterinary Medicine Grows

The second veterinary Explorer Scout Post in the nation was organized this March at South Bend, Ind., under the sponsorship of the Michiana V.M.A. The first post was organized at New Trier Township in suburban Chicago under the sponsorship of the Chicago V.M.A. (see the JOURNAL, Nov. 15, 1959, p. 533). Two others are currently under consideration, one in Des Moines, Iowa, and the other in Indianapolis, Ind.

The Explorer Scout program is a recent development of the National Council of the Boy Scouts of America for high school boys of all ages. It is designed to permit these older boys to "explore" and pursue their special interests, with the guidance of men active in industry and the professions and through trade and professional organizations. The Explorer Scout program in veterinary medicine was initiated last fall by the AVMA under the direction of Brian Forster, AVMA director of public information.

Reasons for such a project are more profound than one may realize. Interest of



**Veterinary Medicine Interests Explorer Scouts.**—A little black dog at the South Bend Animal Clinic, 3224 Lincoln Way W., South Bend, Ind., gets a lot of attention as Dr. Robert Shelts shows members of a new Explorer Scout Post how he examines a puppy's ear.

Left to right, are—John Clark, president of the Post; Gregg Magrane, a cabinet representative; Dr. Shelts; Richard Wilson, a cabinet representative; Charles Hickok, secretary; John Neff, quartermaster. The Post, sponsored by the Michiana V.M.A., was initiated last March.

young people in the biomedical sciences (including medicine, dentistry, and veterinary medicine) has waned noticeably since the advent of "Sputnik" and the subsequent increase of emphasis on the physical sciences. A real decline in the caliber of applicants to veterinary medical colleges can be expected in the future if sagging interest in the profession is allowed to go unchecked.

Explorer scouting in veterinary medicine



**Scouts Explore Veterinary Medicine.**—Explorer scouts from Winnetka and Wilmette, Ill., inspect a 3-week-old pony recovering after surgery at the University of Illinois Large Animal Clinic. The scouts toured the College of Veterinary Medicine there in early April.

Members of the group are, from left to right—Ray Nash, Dr. Jack Dinsmore, Joe Powell, Tom Johnson, Peter Leisner, Jerry Bartlett, Russell Stautmeister, Jay Chalmers, Dr. John Manning, Dr. Robert Storm. Dr. Dinsmore and Dr. Storm escorted the boys to the University and Dr. Manning was their host at the clinic.



was inaugurated as one phase of a much larger program planned to develop and maintain interest in the profession. It has the potentiality of becoming an important factor, for the high school boys of today will be the leaders as well as the rank-and-file of tomorrow's profession.

In addition, explorer scouting in veterinary medicine offers a field of great diversity and challenge for interested boys and exposes them to professional men of high caliber. The program has multiple advantages, one of which is to serve as a character-building program for boys.

On the other side of the ledger, this project is a good one for veterinarians, too,

and those working with explorer scouting report they find it a gratifying experience. Working with young people and explaining the complexities of veterinary medicine to them are proving to be a stimulating and constructive facet of veterinary medicine. It will, in some measure, be a character-building program for the professional man, as well.

The story of the organization of the Explorer Scout program in veterinary medicine appeared in *Diamond Laboratories'* trade journal, *Lab and Field*. The national director of the exploring service requested 5,500 reprints of this article for distribution to Boy Scout executives throughout the country.

## Constituent Secretaries – Key Men Part II

New York  
Mr. Sam Steiger,  
Executive Secretary



North Carolina  
Dr. James T. Dixon  
(AU '43)

North Dakota  
Dr. Dean E. Flagg  
(OSU '45)



Nova Scotia  
Dr. K. W. Trenholm  
(ONT '52)

Ohio  
Dr. H. G. Geyer, Secretary  
(OSU '36)



Ohio  
Dr. R. E. Rebrassier, Ex-  
ecutive Sec. (OSU '14)

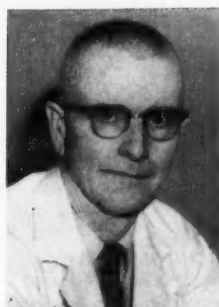


Oklahoma  
Dr. W. D. Speer, Jr.  
(TEX '46)



Oregon  
Dr. Otto H. Muth  
(MSU '29)

Pennsylvania  
Dr. Raymond C. Snyder  
(UP '33)



Saskatchewan  
Dr. William Turnbull  
(ONT '25)

« « » »



South Carolina  
Dr. John W. Dantzler  
(AU '51)

Texas  
Mr. Paul Cain, Executive  
Secretary



Vermont  
Dr. Alfred E. Janawicz  
(TEX '43)



Virginia  
Dr. George B. Estes  
(MSU '42)

« « » »



Washington  
Mr. Robert M. Ford, Executive  
Secretary

West Virginia  
Dr. Harry J. Fallon  
(COR '38)



Wisconsin  
Dr. William J. O'Rourke  
(MSU '44)

## Col. Jennings Receives Honorary Degree from Free University of Berlin

At the meeting of International Association of Veterinary Anatomists during the VII International Anatomical Congress held at the Statler Hilton Hotel, New York City, April 14, 1960, Professor Doctor Fritz Preuss, dean of the Free University of Berlin, presented an Honorary Degree in Veterinary Medicine to Col. William E. Jennings, V.C., U. S. Army. The degree was conferred in recognition of Colonel Jennings' contribution to veterinary education.

Colonel Jennings, who is the first American to receive this award, is chief veterinarian, headquarters, Fifth U. S. Army, Chicago, Ill., and has served in the Army Veterinary Corps for the past 26 years. Prior to his present assignment, he was chief veterinarian for the U. S. Army in Europe (1955-1958).

Currently serving in his tenth year as a member of the AVMA Council on Education, Col. Jennings has been chairman of its Committee on Veterinary Education in Foreign Countries since 1950. He is secretary of both the Council on Education and the Advisory Board on Veterinary Specialties and a member of the Educational Commission for Foreign Veterinary Graduates.

A graduate of Cornell University in 1931, he has taken graduate study in the Univer-

sity of Kentucky, Kansas State University, and his alma mater. During his civilian and military professional career, Colonel Jennings taught for 11 years at Cornell and Kansas State and the Army Medical Service School, Fort Sam Houston, Texas.

---

### Meat Inspection and Poultry Divisions Move to New Quarters

Since March 10, 1960, the meat inspection and poultry divisions of the USDA have been housed in new quarters in the GSA Building at 7th and "D" Streets, Southwest, Washington, D.C.

The move came after months of planning to provide quarters and facilities in keeping with current developments in the livestock and meat processing and poultry industries. It also provides a closer physical relationship between meat and poultry inspection; both organizations are located in adjoining facilities.

The latest developments in test kitchen equipment have been included in the meat inspection layout and an area for trained taste panel work is provided. In addition, the newest facilities for reviewing micro-filming, storing, and indexing of labels have been installed. All officers and facilities are on one floor and each unit is in proper relationship to its adjoining operations.—*D.C.V.M.A. Newsletter (March 15, 1960): 2.*



At the Seventh International Congress of Anatomy at the Statler Hilton Hotel in New York City, April 14, an army cameraman photographed Dr. Fritz Preuss (left), dean of the Free University of Berlin, presenting an Honorary Degree in Veterinary Medicine to Col. William E. Jennings, Fifth Army, Chicago, Ill., for his many contributions to veterinary education.

## ***Dr. Kernkamp to Retire from University of Minnesota in June***



**Dr. H. C. H. Kernkamp looks up from the slides he is marking to see what "Chester A. White" is doing.**

Dr. H. C. H. Kernkamp, professor in the Division of Veterinary Pathology and Parasitology, College of Veterinary Medicine, University of Minnesota, will retire June 30, 1960. He has been a member of the faculty of that University for 46 years, having been appointed May 1, 1914.

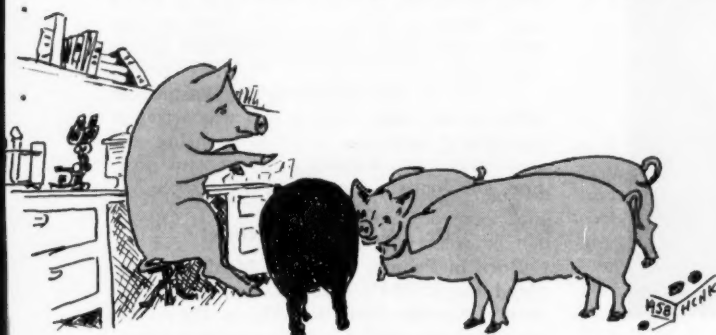
Dr. Kernkamp was born in St. Paul on Jan. 30, 1892. He graduated from the University of Minnesota School of Agriculture in 1910 and received his D.V.M. degree from the Ohio State University in 1914. He received his M.S. degree from Iowa State University, Ames, in 1928. Dr. Kernkamp was acting assistant dean of the College of Veterinary Medicine at Minnesota from July 1, 1953 to June 30, 1954.

An outstanding leader on research in diseases of swine, Dr. Kernkamp's numerous contributions in this field merit all possible recognition. For many years, he was secretary of the Minnesota V.M.A. and its president in 1955. Dr. Kernkamp was a member

of the AVMA Executive Board from 1935 to 1940. He was vice-president of the Conference of Research Workers in Animal Diseases in 1947 and president in 1948.

Among other affiliations, he is a member of the American Association for the Advancement of Science; the American Association of University Professors; the United States Livestock Sanitary Association; charter member of the American Association of Veterinary Pathologists; and a member of Sigma Xi and of Phi Zeta.

Dr. Kernkamp's distinguished service to the University of Minnesota and to the veterinary profession, will long be remembered. He plans to spend the first year of his retirement at the North Carolina State College in Raleigh.



**Here's Chester A. White engaged in a confab with some of his clients and, at right, in a relaxed mood—catching up on some AVMA news.**

These drawings were enclosed with manuscripts or sketched on letters from Dr. H. C. H. Kernkamp with, of course—help from "Chester!"



## **Drs. Gage, Jones, McMichael Become Assistant Directors of AIQ Division**

Drs. T. A. Gage (COR '43), R. P. Jones (MO '50), and W. W. McMichael (COL '35) were appointed assistant directors of the Animal Inspection and Quarantine Division, ARS, USDA, earlier this year.

Each of these men is responsible for supervising AIQ field operations within his respective area: Dr. Gage, western area; Dr. Jones, central area; and Dr. McMichael, eastern United States. They represent the Division's director in field operations relating to inspection and quarantine activities, enforcement of animal quarantine, import-export certification of livestock and products, manufacture and marketing of animal biological products, and the importation and movement of restricted products. They also represent the Division with state officials and representatives of other governmental agencies and industrial groups.

### **Dr. T. A. Gage**

Dr. Gage is a native of Kinderhook, N.Y. He engaged in private practice in New York from the time of his graduation from Cornell,



**Dr. T. A. Gage**

in 1943, until he joined the USDA in the San Antonio, Texas, Union Stockyards in 1951. He later assisted in the supervision of the

foot-and-mouth disease patrol of the Mexican border from California to the Big Bend area of Texas. Transferring to Pembina, N.D., in 1954, as the port veterinarian for the area, Dr. Gage participated in the Veterinary Administrator Development Program and then was assigned to the Washington office of the AIQ Division in 1957.

### **Dr. R. P. Jones**

Dr. Jones' first assignment with the USDA was with the foot-and-mouth disease commission in Mexico. He transferred to veter-



**Dr. R. P. Jones**

inary biological product inspection in Sioux City, Iowa, in 1951, and later held similar assignments in Columbus, Ohio, and Zionsville, Ind.

In 1955, he transferred to the Washington office of the AIQ Division and was active in veterinary biological product licensing and inspection until assuming his present position. Dr. Jones is a native of St. Joseph, Mo.

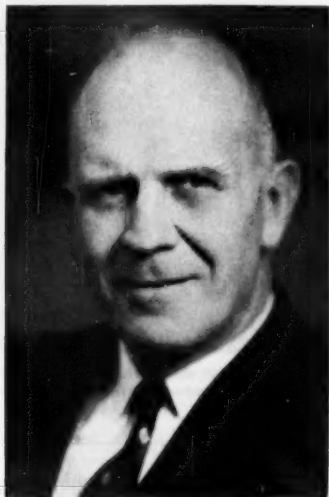
### **Dr. W. W. McMichael**

Born in Paonia, Colo., Dr. McMichael entered the USDA's service upon graduation from Colorado State in 1935 as the veterinarian responsible for tuberculosis and brucellosis eradication programs in the St. Joseph, Ore., area.

From 1941-1946, he served with the U.S. Air Force. He then returned to Oregon and



was stationed at Eugene until 1951. Transferring to Corvallis, Dr. McMichael was in charge of the brucellosis diagnostic laboratory until 1953. He participated in the first Veterinary Administrator Development Program with assignments in Des Moines, Iowa, and St. Paul, Minn.



Dr. W. W. McMichael

Dr. McMichael was assistant veterinarian in charge in Pennsylvania, in 1955, and in Florida in 1956-1957. He then transferred to the Washington office of the AIQ Division where he was concerned with the poultry and zoological animal importations.

### **First Zoonoses Center on Continent to Be Established at University of Illinois**

A Zoonoses Research Center at the University of Illinois in Urbana, to be activated Sept. 1, 1960, will be the first of its kind in North America. The only other comparable facility is the Pan-American Zoonoses Center begun in 1956 at Azul, Argentina, and officially inaugurated on April 25, 1959 (see the JOURNAL, July 1, 1959, p. 81).

The University of Illinois center, to be directed by Dean Carl A. Brandly of the College of Veterinary Medicine, will provide facilities for coordinated attacks on diseases and other health problems by teams of scientists. "Complexity of health problems now

being investigated makes such joint efforts necessary," Dean Brandly said.

Veterinarians, physicians, biologists, and climatologists will contribute their particular scientific skills in cooperative research at Illinois and a resident staff will man the Center. Their work will be supported by consulting personnel from the University's College of Medicine, the Illinois Department of Health, Illinois Department of Agriculture, U.S. Public Health Service, and the World Health Organization.

"Although some diseases transmissible between animal and man have been known for centuries, they somehow have been regarded as errors of nature," Dean Brandly pointed out.

Dean Granville Bennett of the College of Medicine says there is a "compelling need for concerted and integrated multi-disciplinary approach to many problems of human and veterinary medicine," which will be the objective of the new zoonoses center.

## *Among the States and Provinces*

### **Alabama**

**MOBILE—ANNUAL STATE CONVENTION HELD IN APRIL.**—The 53rd annual convention of the Alabama V.M.A. was held at the Battle House, April 3-5, 1960.

Among the speakers and their presentations were: Drs. J. E. Greene, dean, School of Veterinary Medicine, Auburn University—trends in veterinary medicine; E. T. York, director of extension service, Auburn University—meeting the challenge of a changing agriculture; S. F. Scheidy, AVMA president, Bryn Mawr, Pa.—why stand alone? and tranquilizers in veterinary practice; W. G. Magrane, practitioner, Mishawaka, Ind.—canine glaucoma and uses and misuses of corticoids in canine ophthalmology; R. W. Storey, practitioner, Muskegon, Mich.—distemper vaccination, a public relations aid and the business aspects of small animal practice; Joe G. Martin, Ripley, Miss.—disease and nutritional problems in swine production; Iain M. Paton, director of professional services, Jensen-Salsbery Laboratories—therapy in bovine mastitis and calf scours and its dietary relationship; Mark L.

# **Postgraduate Short Course on Spinal Diseases Proves to Be Popular Among Veterinarians**



Among the 12 veterinarians who attended the short course on spinal diseases at Auburn University, March 16-18, were, left to right—Drs. B. F. Hoerlein who conducted the short course; J. E. Reed, Gastonia, N. C.; C. C. McLean, Southern Pines, N. C.; J. G. Martin, Boone, N. C.

Morris, director of the Morris Foundation, Allenspark, Colo.—nutrition in the management of small animal diseases; and J. G. Milligan, state veterinarian, and B. F. Lauderdale, veterinarian in charge, USDA, ADE, both of Montgomery—infectious disease control problems in Alabama.

In addition to this group, several practitioners from Alabama and members of the faculty of the School of Veterinary Medicine at Auburn contributed to the program.

• • •

**DECATUR—NORTH ALABAMA ASSOCIATION MEETS.**—The January meeting of the North Alabama V.M.A. was held at the Country Club in Decatur.

This was a dinner meeting and the wives were included. Thirty-five veterinarians were present and 15 women attended. Dr. Carl H. Jones, Athens, president, presided and Dr. M. K. Heath, Auburn, secretary of the Alabama V.M.A., presented the program.

s/RAY ASHWANDER, *Secretary*.

## **Arizona**

**MESA—CENTRAL ASSOCIATION ELECTS NEW ROSTER.**—At the March, 1960, meeting of the Central Arizona V. M. A., the following

officers were elected: Drs. James Sharkey, Phoenix, president; Roy Echeverria, Casa Grande, vice-president; and B. O. Woodworth, Chandler, secretary-treasurer.

s/BERTRAM O. WOODWORTH, *Secretary*.

## **District of Columbia**

**WASHINGTON.**—Major Robert Crandell, V.C., USAF, discussed "The Present Status of New Feline Viruses" at the March, 1960, meeting of the District of Columbia V.M.A. in the South Room of the Shoreham Hotel. Also, General J. A. McCallam talked on recent AVMA developments.—D.C.V.M.A. *Newsletter* (March 15, 1960): 1.

• • •

**WASHINGTON—ACADEMY'S ROSTER FOR 1960.**—Newly elected District of Columbia Academy of Veterinary Medicine officers for 1960 are: Drs. E. E. Ruebush, president; George Brumble, president-elect; Jean Goudy, vice-president; Albert Benson, treasurer; and Roswell Bowersett, secretary.

The District of Columbia Academy of Veterinary Medicine and the American Animal Hospital Association held a joint all-day meeting on Feb. 25, 1960, at the Shoreham

Hotel. Program highlights included: Drs. Brodey, University of Pennsylvania—surgical diseases of urogenital system; Wayne Riser, Kensington, Md.—hip dysplasia; Ralph Witter, Alexandria, Va.—canine otitis; and J. Raymond Currey, Washington, D.C.—veterinary dentistry.—*D.C.V.M.A. Newsletter* (Jan. 15, 1960): 2.

## Iowa

**AMES—PROGRAM IN BIOMEDICAL ELECTRONICS AT IOWA STATE.**—Teaching and research in the field of biomedical electronics, which Iowa State University began in 1957, have been organized into a program with its own research laboratories.

The program is a joint project of the College of Engineering and the College of Veterinary Medicine. It includes the Department of Electrical Engineering, the Department of Veterinary Anatomy, the Department of Veterinary Physiology and Pharmacology, the Engineering Experiment Station, and Veterinary Medical Research Institute.

### Dr. V. W. Bolie—Program Head

"Three categories of students are involved in our teaching program," explained Dr.



Dr. Victor W. Bolie

Victor W. Bolie, chairman of the biomedical electronics program committee, who serves in both the Department of Electrical Engineering and that of Veterinary Physiology and Pharmacology. "We are interested in engineering graduate students who want to study advanced methods of designing in-

struments and methods to study physiological functions. We will also include graduate students in veterinary medicine, who will specialize in advanced methods of using modern instruments for solving medical research problems. A third group will be qualified graduate students from other physical and biological sciences interested in biomedical instrumentation."

The State of Iowa and the United States Public Health Service have each advanced half of the funds for a \$400,000 laboratory building. It will include an electronics shop, small animal quarters, a fully shielded and instrumented surgery room, radio-tracer laboratories, drug and chemical rooms, and research laboratory space. Construction is expected to start this spring on the three-story structure which will be connected to the southwest corner of the present Veterinary Quadrangle at Iowa State.

### Projects in Process

A number of research projects in biomedical electronics are currently under way. A simplified cardiac defibrillator is in the final proving stage. High-gain preamplifiers have been constructed for an oscilloscope for use in cardiovascular and neurophysiology experiments. Electronic analog computers are currently being used to investigate the feedback regulation problems associated with normal and abnormal hormone function. Considerable research is being done with miniaturized transistor radio-telemetry equipment for remotely monitoring body functions.

A primary purpose of the program will be the gathering of physiological data on animals, the testing of the effects of drugs, and the devising of improved methods for the diagnosis of disease. Much of the biomedical electronic research is expected to have important implications in the biological and biophysical aspects of the exploration of outer space and space travel.

## Maryland

**STATE ACADEMY OF SCIENCES NAMES DR. G. MIGAKI AN OUTSTANDING SCIENTIST.**—Each year, the Maryland Academy of Sciences selects an outstanding young scientist of the year. Last year, 14 scientists from Maryland were in competition for the Award.

This year, Dr. George Migaki (WSU '52), Silver Spring, Md., from the meat inspec-

tion division working in the biological control laboratory at Beltsville, was nominated in recognition of his histopathological work.

The top honor went to a young physicist engaged in missile work.—*D.C.V.M.A. Newsletter* (Jan. 15, 1960): 3.

### Michigan

**BIRMINGHAM—WIFE OF THE LATE DR. CAMPBELL DIES.**—The former Mrs. Delwin M. Campbell, at the time of her death Gertrude Campbell Heuer, died Sept. 25, 1959, at her home. As the wife of Dr. Delwin M. Campbell editor of *Veterinary Medicine* for more than 40 years, she was well known to the entire profession. During Dr. Campbell's army service in World War II as colonel in the Veterinary Corps, his wife filled his place as editor and publisher, continuing with him in active business association until his retirement.

After Dr. Campbell's death in 1952, she presented his extensive veterinary and scientific library to the veterinary medicine division of Kansas State University, together with a fund for the binding of periodicals for a proposed Delwin M. Campbell Room to be maintained at the library.

Mrs. Heuer was born in Washington, Kan., in 1883. And graduated from Kansas State College in 1906. She then became assistant in the chemistry department there until her marriage to Dr. Campbell in 1907.

Beside assisting her former husband in the publishing business, Mrs. Heuer contributed to other publications, was enrolled in the graduate school of law at the University of Chicago, and had varied interests in club and community projects. Biographies under the name of Gertrude H. Campbell appear in "Who's Who in Chicago," "Who's Who in the Midwest," and "Who's Who of American Women."

Since 1953 she has maintained her home in Birmingham, Mich., where in 1956 she married William F. Heuer, of Birmingham who survives.

### New York

**NEW YORK—CITY ASSOCIATION HOLDS FIRST MEETING AT MEDICAL CENTER.**—The first meeting of the veterinary Medical Association of New York in its new offices at the New York University Bellevue Medical

Center, 550 First Ave., was held on April 6.

Two speakers were heard: Dr. Sol Michaelson, of the School of Medicine and Dentistry, University of Rochester, speaking on "Microwave Effects on Dogs;" and Dr. Brian Singleton, of London, England, discussing "Recent Developments of Small Animal Practice in Great Britain."

The Association is a 66-year-old organization devoted to the advancement of the science and art of veterinary medicine, including its relationship to public health. It has a membership of 250 and holds monthly meetings (October to June) which are open to members and their guests. The officers include: Drs. R. L. Burkhardt, president; F. Bloom, president-elect; and C. E. DeCamp, secretary-treasurer.

The first half of each monthly meeting comprises the presentation of papers on various aspects of veterinary medicine and related subjects, including new developments and recent advances. Speakers come from all parts of the world and include members of allied professions as well as veterinarians. The second half of each monthly meeting is devoted to Association business.

### North Carolina

**SCHOOL OF PUBLIC HEALTH ADDS TO CURRICULUM.**—A course on Veterinary Public Health Practice and Comparative Medicine has recently been placed in the curriculum for graduate students in the School of Public Health, University of North Carolina.

The course consists of 14 three-hour seminars. Emphasis is placed on the following subjects: epidemiology of the zoonoses; food hygiene and production; radiobiology; biological warfare; laboratory animal medicine; the veterinarian in the Armed Forces; and comparative medicine and its relation to chronic and organic diseases of man.

The course is designed to assist the graduate student in public health to achieve a better understanding of his role in community health. The course is directed by Dr. Martin P. Hines, chief, veterinary public health section, North Carolina State Board of Health. Dr. Hines also is visiting associate professor of public health administration at the School of Public Health, University of North Carolina.

s/MARTIN P. HINES, Correspondent.

## Ohio

**CINCINNATI—DR. SEBRIGHT, HEAD OF MEAT INSPECTION, RETIRES.**—Dr. Melvin R. Sebright (STJ '16), inspector in charge of the Cincinnati meat inspection station for almost ten years, retired March 31, 1960, following 30 years of devoted service.



**Dr. Melvin R. Sebright**

Dr. Sebright entered duty with the former BAI at South Saint Paul, Minn., in November, 1930, where he remained until 1945 when he became inspector in charge at Bowling Green, Ohio. Following assignments found Dr. Sebright as inspector in charge at McCook, Neb., and Topeka, Kan., prior to his Cincinnati, position.

Dr. and Mrs. Sebright have no immediate plans but their many friends and associates in meat inspection wish them many happy years of well-deserved leisure in retirement.

Dr. Sebright has been succeeded by Dr. Morse A. Gates from the Boston, Mass., station (see below).

s/C. H. PALS, *Correspondent.*

• • •

**CINCINNATI—DR. M. A. GATES SUCCEEDS DR. M. R. SEBRIGHT.**—Dr. Morse A. Gates, Jr. (COL '39), has been promoted to the position of inspector in charge of the Cincinnati meat inspection station of the USDA. Dr. Gates was selected to succeed Dr. M. R. Sebright, whose retirement was effective the end of March.

Dr. Gates went to Cincinnati from Boston, Mass., where he has held the position of assistant inspector in charge since 1958. He



**Dr. Morse A. Gates**

entered the Meat Inspection Service in February, 1940, and held assignments at South Saint Paul, Minn., and Storm Lake, Iowa, prior to being transferred to Boston.

s/C. H. PALS, *Correspondent.*

## Puerto Rico

**SAN JUAN—DR. MILLER IN CHARGE OF ANIMAL DISEASE ERADICATION IN PUERTO RICO.**—Appointment of Dr. L. N. Miller, Jr., as veterinarian in charge of the U. S. Department of Agriculture's Animal Disease Eradication Division activities in San Juan, Puerto Rico, became effective June 15, 1959. In his new assignment, Dr. Miller is responsible for administering the Division's programs dealing with control and eradication of diseases of livestock and poultry in cooperation with the insular officials, the animal inspection and quarantine, and the meat inspection activities for the Agriculture Research Service.

Formerly stationed at Nashville, Tenn., Dr. Miller was assistant veterinarian in charge of the Animal Disease Eradication Division Field station there, a post he had held since May, 1957. A native of Alabama, he studied preveterinary medicine for two years at St. Bernard Junior College, Cullman, Ala. In September, 1941, Dr. Miller



enlisted in the U. S. Marine Corps for a four-year period, spending 38 months of that time in the South Pacific area. He re-



Dr. Lloyd N. Miller, Jr.

sumed his study of veterinary medicine in January, 1946, at Alabama Polytechnic Institute (now Auburn University) and obtained his D.V.M. degree in June, 1949.

Following graduation he served in Mexico for three years on the foot-and-mouth disease eradication program. Dr. Miller then transferred to Louisiana for field work on tuberculosis and brucellosis projects. In October, 1955, he was assigned as assistant

veterinarian in charge in Raleigh, N. C., remaining there until his transfer to Tennessee in 1957.

Dr. Miller succeeded Dr. E. R. Mackery who was assigned veterinarian in charge of the animal disease eradication activities in Phoenix, Ariz.

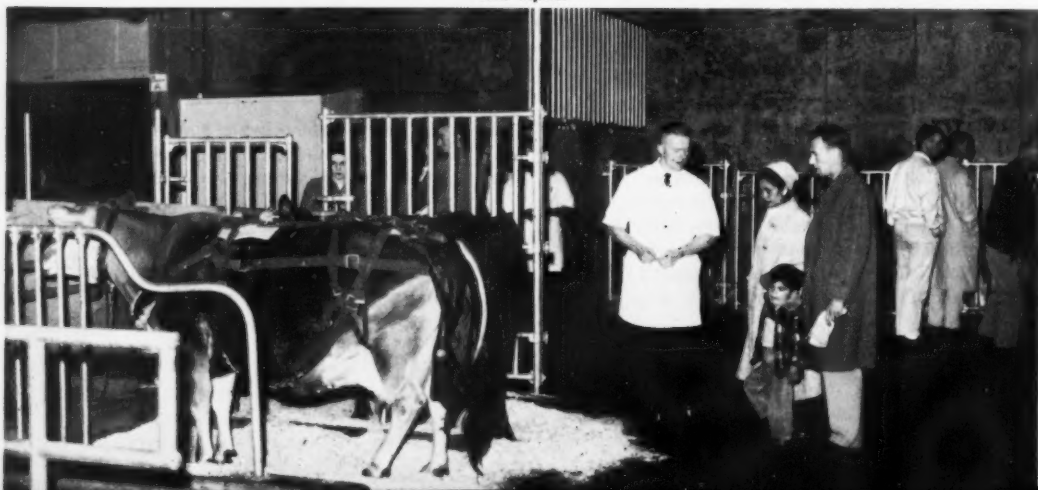
### Washington

**VETERINARY SCHOOL AT W.S.U. HOLDS OPEN HOUSE.**—The annual Open House (April 22) conducted by the veterinary students of Washington State University held a special attraction for the public this year due to the near completion of new clinic facilities in the College of Veterinary Medicine. An overflow of 2,000 enjoyed the enterprise.

For Open House, the new small animal surgery area housed displays of bone fractures, and various fracture repairs were demonstrated by students. The small animal wards equipped with stainless steel kennels were a big attraction, as were the examination rooms with x-ray viewers built into tiled wall. Spectators also toured office facilities and intern quarters.

The largest x-ray unit in a veterinary college in the United States is part of the new large animal facilities. An additional display there includes a multimirrored overhead surgical light. An outstanding attraction was a demonstration of the new stainless steel, electro-hydraulically operated, multiposition large animal surgical table with four table-located controls, plus the main wall panel control. The 567 square

**Veterinary students and visitors are shown discussing metabolism tests in the new large animal area at the College of Veterinary Medicine, Washington State University, during the College's Open House last April.**



feet devoted to a neoprene-floor casting room was another highlight of the many new features on display.

Topping off the day's festivities for the younger set was a drawing for a small white puppy which made a young boy very happy.  
s/KENNETH K. KELLOGG, Publicity Chairman.

## State Board Examinations

**ALABAMA**—June 6-7, 1960, Auditorium of State Administration Building, Montgomery, Ala. Deadline was May 25. The application and examination fee is \$27.50. Dr. Ray A. Ashwander, Secretary, Box 1767, Decatur, Ala.

**ARIZONA**—June 22-23, 1960, Arizona State College, Flagstaff, Ariz. Deadline for applications is June 12; the fee is \$25. Dr. William E. Snodgrass, Secretary, 1612 W. Washington St., Phoenix, Ariz.

**ARKANSAS**—June 16-17, 1960, 2400 East Fifth St., Little Rock, Ark. Telephone # is Franklin 2-5129; the fee is \$10. Dr. David Ibsen, 2400 East Fifth St., Little Rock, Ark., Secretary.

**BRITISH COLUMBIA**—June 4, 1960, Vancouver, B.C. The fee is \$25. Dr. Kenneth Chester, Registrar, 2853 W. 33rd St., Vancouver, B.C., Can.

**CALIFORNIA**—June 14-16, 1960, School of Veterinary Medicine, University of California, Davis, Calif. Deadline for applications was 30 days prior to the examination for approved veterinary school graduates and 90 days for foreign applicants; the fee is \$25. William E. Barbeau, Board of Examiners in Veterinary Medicine, 1020 N. St., Sacramento 14, Calif.

**COLORADO**—May 31-June 2, Colorado State University, Veterinary Hospital, Fort Collins, Colo. Deadline for applications was April 30; the fee is \$25. Dr. V. D. Strauffer, Secretary, 5500 Wadsworth Blvd., Arvada, Colo.

**CONNECTICUT**—July 12-14, 1960, Hartford, Conn. Deadline for applications is July 2; the fee is \$50. Dr. Salo Jones, Secretary, Room 285, State Office Building, Hartford, Conn.

**DISTRICT OF COLUMBIA**—June 26, 1960, Department of Occupations and Professions, 1740 Massachusetts Ave., N.W., Washington, D.C. Deadline for applications is June 2; the fee is \$25. Dr. Alan F. McEwan, Secretary, Board of Examiners in Veterinary Medicine, 1740 Massachusetts Ave., N.W., Washington, D.C.

**FLORIDA**—June 13-15, 1960, Municipal Auditorium, Miami, Fla. (Headquarters—Biscayne Terrace Hotel). Deadline for applications is June 1, the fee is \$25. Dr. E. F. Thomas, Secretary, Florida State Board of Veterinary Medical Examiners, 4937 S. Tamiami Trail, Sarasota, Fla.

**GEORGIA**—June 9-10, 1960, State Capitol, Atlanta, Ga. Applications should be on file in the office of the Joint Secretary at least 15 days prior to the date of the examinations; the fee is \$10. Address: Joint Secretary, State Examining Boards, 224 State Capitol Building, Atlanta, Ga.

**HAWAII**—Sept. 22-24, 1960, Honolulu, Hawaii. Deadline for applications is Aug. 22; the fee is \$25. Dr. Wilson M. Pang, Secretary, 1683 Kalakaua Ave., Honolulu 14, Hawaii.

**IDAHO**—June 9-10, 1960, Capitol Building, Boise, Idaho. Deadline for applications was May 10; the fee is \$25. Miss Nan K. Wood, Director, Occupational License Bureau, Capitol Building, Boise, Idaho.

**ILLINOIS**—June 29-July 1, 1960, Chicago office of the Department of Registration and Education, 160 N. LaSalle St., Chicago, Ill. Deadline for applications is June 14; the fee is \$20. Mr. Fredric B. Selcke, Superintendent of Registration, Capitol Building, Springfield, Ill.

**INDIANA**—July 12-13, 1960, State House, Indianapolis, Ind., at 8:00 a.m. Deadline for applications is 30 days preceding the day of the regular meeting for the applicants applying by examination; 15 days if applying by reciprocity. Those applying for examination, a \$40 fee must accompany the application; for those coming in by reciprocity, the fee is \$50. Dr. Joe W. Green, Secretary Veterinary Examining Board, State Board of Health Building, Room 422, 611 Park Ave., Indianapolis, Ind.

**IOWA**—May 31-June 1, 1960, Des Moines, Iowa. Applicants must be in the office of the Division of Animal Industry, State House, Des Moines, not later than 8:00 a.m., on May 31. Additional information may be obtained by writing: Dr. A. L. Sundberg, Chief, Division of Animal Industry, State House, Des Moines 19, Iowa.

**KANSAS**—May 31-June 2, 1960, Dykstra Building, Kansas State University, School of Veterinary Medicine, Manhattan, Kan. Deadline for applications was May 1; the fee is \$10. Dr. Charles W. Bower, Secretary, 1128 Kansas Ave., Topeka, Kan.

**KENTUCKY**—July 25, 1960, Capitol Building, Frankfort, Ky. Deadline for applications is July 11; the fee is \$25. For Applications and information, write: Mr. William E. Johnson, 319 Ann St., Frankfort, Ky. (A special June examination is usually given; the exact date has not been set.)

**MAINE**—July 11-12, 1960, Dr. Libby's office, 6th Floor, Office Building, Augusta, Maine. Deadline for applications is 15 days before the examination. There is a \$20 fee with each application. Dr. E. C. Moore, Secretary, Turner Center, Maine.

**MARYLAND**—June 6-7, 1960, Symons Hall, University of Maryland, College Park, Md. The examination begins promptly at 8:00 a. m. Deadline for applications is June 1; the fee is \$25. Dr. Harold S. Gober, Secretary, 5400 Park Heights Ave., Baltimore 15, Md.

**MASSACHUSETTS**—June 22-24, 1960, University of Massachusetts, Amherst, Mass. Deadline for applications is at least one week prior to the examinations date; the fee is \$25. Dr. Edward A. Zullo, Secretary, Board of Registration in Veterinary Medicine, Room 33, State House, Boston 33, Mass.

**MICHIGAN**—June 20-21, 1960, Veterinary Building, Room 146, Michigan State University, East Lansing, Mich., at 8:00 a.m. Deadline for applications is June 5; \$25 fee is to accompany applications. Dr. John F. Quinn, Corresponding Secretary, Board of Veterinary Examiners, Sixth Floor, Lewis Cass Building, Lansing 13, Mich.

**MINNESOTA**—July 12-13, 1960, College of Veterinary Medicine, University of Minnesota, St. Paul Campus, St. Paul 1, Minn., at 8:00 a.m. each day. Deadline for applications is 30 days prior to the examinations; the fee is \$25. Dr. A. C. Spannaus, Executive Secretary, Veterinary Examining Board, Route #1, Waconia, Minn.

**MISSISSIPPI**—June 21, 1960, Woolfolk State Building, Jackson, Miss. Deadline for the applications is June 11, the fee is \$25. Dr. William L. Gates, Secretary, Box 417, Clarksdale, Miss.

**MISSOURI**—June 2-3, 1960, Veterinary Clinic, University of Missouri, Columbia, Mo. Deadline for the applications was 15 days prior to the date of the examination; the fee is \$25. Dr. L. A. Rosner, Chairman, Box 630, Jefferson City, Mo.

**MONTANA**—June 20-22, 1960, Senate Chamber, Helena, Mont. Deadline for applications was May 31; the fee is \$25. Dr. J. N. Safford, Secretary, Capitol Station, Helena, Mont.

NEVADA—July 23, 1960, Tonopah, Nev. Deadline for applications is June 1; the fee is \$10. Dr. E. H. Stodtmeister, 102 "B" St., Sparks, Nev.

NEW BRUNSWICK—June 10-11, 1960, in any provincial capitol. Must be in the office of the registrar, Dr. Claude Kealey, National Examining Board, P.O. Box 416, Ottawa, Ont., Can., by May 15; the fee is \$25. Dr. R. H. Henry, Secretary, Box 338, Moncton, N.B., Can.

NEW HAMPSHIRE—July 5, 1960, State House, Concord, N.H. Deadline for applications is June 25; the fee is \$15. Dr. J. P. Seraichick, Secretary, Board of Veterinary Examiners, Chesterfield Rd., Keene, N.H.

NEW JERSEY—June 24-25, 1960, State House, Trenton, N.J. Deadline for applications is June 14; the fee is \$25. Dr. Robert R. Shomer, Secretary, 1680 Teaneck Rd., N.J.

NEW MEXICO—June 17-18, 1960, State Capitol Building, Santa Fe, N.M. Deadline is two weeks prior to the examination date; a \$25 fee is to accompany applications. Dr. Edwin J. Smith, Secretary, State Board of Veterinary Examiners, P.O. Box 4385, Santa Fe, N.M.

NEW YORK—June 15-16, 1960 (practical), June 28-July 1, 1960 (written), at Ithaca, New York City, Buffalo, Syracuse, Rochester, and Albany, N.Y. Applications must be received 30 days before date of examination; the fee is \$40. Mr. James O. Hoyle, 23 South Pearl St., Albany, N.Y.

NORTH CAROLINA—June 20-22, 1960, Grove Park Inn, Asheville, N.C. Dr. James I. Cornwell, Secretary-Treasurer, North Carolina State Veterinary Examining Board, P.O. Box 9038, Asheville, N.C.

NORTH DAKOTA—Oct. 12-13, 1960, Van Es Building, North Dakota Agricultural College, Fargo, N.D. Deadline for applications is about ten days prior to the examination date; the fee is \$15. Dr. M. C. Hawn, Secretary, N. D. Veterinary Medical Examining Board, 1407-13th St. North, Fargo, N.D.

OHIO—June 6-8, 1960, Sisson Hall, College of Veterinary Medicine, Ohio State University, Columbus, Ohio. Applicants must be present at 8:00 a.m. on June 6. Dr. H. G. Geyer, Executive Secretary, Ohio Veterinary Medical Board, Ohio Departments Building, Room 720, Columbus 15, Ohio.

OREGON—June 7-9, 1960, Hotel Multnomah, Portland, Ore., beginning at 8:00 a.m. on June 7. Deadline for applications was one month prior to the date of the examination; the fee is \$25. Dr. C. R. Howarth, 135 N. Highway, St. Helens, Ore.

PENNSYLVANIA—June 16-17, 1960, School of Veterinary Medicine, University of Pennsylvania, 39th & Woodland Ave., Philadelphia, Pa. Deadline for applications was May 15; the fee is \$20. Dr. Charles J. Hollister, Secretary, State Board of Veterinary Medical Examiners, Box 911, Harrisburg, Pa.

PUERTO RICO—Aug. 2, 1960, Division of Examining Boards, Comercio 452, Carrera's Building, San Juan, P.R. Deadline for applications is July 3; the fee is \$10, the license fee is \$5, and one P.R. Revenue Stamp of \$1. Herminio Mendez Herrera, Secretary, Box 3271, San Juan, P.R.

RHODE ISLAND—July 12-13, 1960, Division of Animal Industry, 505 Veterans' Memorial Bldg., 83 Park St., Providence, R.I. Deadline for applications is July 1. Dr. Thomas E. Grennan, Secretary, Providence, R.I.

SASKATCHEWAN—June 21-23, 1960, University of Saskatchewan, Saskatoon, Can. Deadline for applications is June 1; the fee is \$25. Dr. W. Turnbull, Health Department, City Hall, Saskatoon, Saskatchewan, Can.

SOUTH CAROLINA—June 16-17, 1960, Columbia, S.C. Deadline for applications is June 2; the fee is \$25. Dr. H. L. Sutherland, Secretary, P.O. Box 87, Union, S.C., secretary.

SOUTH DAKOTA—June 20-21, 1960, South Dakota State College, Brookings, S.D. Deadline for applications is June 1; the fee is \$10. Dr. M. O. Mitchell, Secretary,

Veterinary Examining Board, State Office Building, Pierre, S. D.

TENNESSEE—June 27-28, 1960, Cordell Hull Building, Capitol Grounds, Nashville, Tenn. Deadline for applications is June 25; the fee is \$25. Dr. T. H. Bullington, Secretary, R.F.D. #3, Fayetteville, Tenn.

TEXAS—May 30-June 1, 1960, A. & M. College of Texas, College Station, Texas. The completed application must be received in the Board office not later than 30 days before the examination date. Mr. T. D. Weaver, Executive Secretary, Texas State Board of Veterinary Medical Examiners, 207 Capital National Bank Building, Austin 16, Texas.

UTAH—June 30-July 1, 1960, State Capitol Building, Department of Business Registration, Salt Lake City, Utah. Applications should be submitted to Mr. Frank E. Lees, Director of the Department of Business Registration and Registration Division, State Capitol Building, Salt Lake City, Utah, by June 15. Registration fee is \$15.

VIRGINIA—June 30-July 1, 1960, Senate Chamber, Capitol Building, Richmond, Va. Deadline for applications was May 30; the fee is \$25. Mr. T. N. Burton, Secretary, P.O. Box 1-X, Richmond 2, Va.

WEST VIRGINIA—June 20, 1960, Capitol Building, Room E-117 (ground floor of the east wing), Charleston, W. Va. For applications and information, write: Dr. Harry J. Fallon, Secretary-Treasurer, 200 Fifth St. West, Huntington, W. Va.

WISCONSIN—June 27-28, 1960, Madison, Wis. Dr. A. A. Erdmann, Chief Veterinarian, State-Federal Cooperative Program, 6 West, State Capitol, Madison 2, Wis.

WYOMING—June 21-22, 1960, State Office Building (third floor, south wing), Cheyenne, Wyo. Deadline for applications is June 6; the fee is \$25. Dr. G. H. Good, Secretary, State Office Building, Cheyenne, Wyo.

## Deaths

Star indicates member of AVMA

\*Eugene P. Barlage (OSU '52), 32, Pandora, Ohio, died of a liver ailment on Feb. 20, 1960. He had been hospitalized in Lima since February 3.

Dr. Barlage was a life-long resident of Putnam County. Among his many civic and professional affiliations, he was a member of the Northwestern Ohio V.M.A., Ohio State V.M.A., Sigma Nu, and Omega Tau Sigma.

\*C. N. Bramer (COR '23), 59, formerly of Evanston, Ill., died April 7, 1960, in Los Altos, Calif. He had resided in California since 1950.

From 1939 to 1950, Dr. Bramer had operated the Bramer Animal Hospital in Evanston. He sold his practice there to Dr. Robert C. Glover when he moved to California.

He was a past-president of the Chicago V.M.A. and a one-time chairman of the state examining board in Illinois.

\*Howard H. Custis (UP '07), 78, Oxford, Pa., a practicing veterinarian for more than 50 years, died March 1, 1960, after an illness of one year.

Born in Philadelphia, Dr. Custis was educated in local schools and obtained his V.M.D. degree from the University of Pennsylvania in 1907.

In 1956, he was made a life member of the AVMA.

★**Arthur D. Goldhaft** (UP '10), 74, Vineland, N.J., died April 2, 1960, following a long illness.

In 1914, Dr. Goldhaft founded the Vineland Poultry Laboratory wherein he devoted himself to poultry disease prevention. In 1937, he helped to develop vaccines against Asian influenza. In his work, he cooperated with the late Dr. Frederick R. Beaudette of Rutgers University.

Dr. Goldhaft worked to promote the agricultural economy of Israel and had held many responsible positions in the Zionist Organization of America. In 1951, he was the United States' representative to the World Poultry Congress in Paris and, in 1957, the Vineland community awarded him a plaque for his assistance to farmers. He is a past-president of the Animal Health Institute of Chicago.

Two of Dr. Goldhaft's children are also veterinarians: Dr. Helen C. Wernicoff (COR '33) and Dr. Tevis M. Goldhaft (COR '35), both of Vineland.

**Angel K. Gomez** (PHI '14), 68, San Juan, Rizal, Philippines, died Feb. 6, 1960, after a prolonged illness. Dr. Gomez was a former dean and then professor emeritus of veterinary pathology and bacteriology, College of Veterinary Medicine, at the University of the Philippines.

Born in Ermita, Manila, Dr. Gomez became an instructor of veterinary anatomy after his graduation from the University of the Philippines in 1914. From 1916 to 1918, he studied for a year at both the University of Pennsylvania and at Cornell University as his University's Fellow to these institutions. From 1919, he rose successively from assistant professor, associate professor, professor, department head, assistant dean, then dean, and finally, professor emeritus in 1958.

Dr. Gomez was one of the first Filipinos and the first veterinarian from the Philippines to be sent on a WHO Fellowship grant abroad. For his research, Dr. Gomez was listed in the "American Men of Science Yearbook" and for distinguished service and achievement in veterinary science, research, and education, he was honored as an out-



Dr. Angel K. Gomez

standing alumnus of the College of Veterinary Medicine by the University of Philippines' Alumni Association in 1959.

He was a member of the Philippine National Research Council, the Philippine V.M.A., the Philippine Society of Parasitology, Phi Kappa Phi, and Sigma Xi, among many other organizations.

★**Richard J. Gorman** (KSU '42), 45, East Hartford, Conn., president of the State Board of Veterinary Registration and Examination, died March 27, 1960.

Born in Hartford, Dr. Gorman had lived in this locality for most of his lifetime. During World War II, he helped train dogs for war work and since 1946, he had engaged in practice in East Hartford.

Dr. Gorman was known throughout the state for his work in the treatment of chinchillas. He also served as slaughterhouse inspector for East Hartford.

★**Earl F. Graves** (KSU '27), 61, Anchorage, Alaska, the first territorial veterinarian in Alaska died, Feb. 29, 1960, from a heart ailment.

Born in Omaha, Neb., Dr. Graves moved to Alaska shortly after graduation and worked out of Juneau for 4 years. He later went to the University of Wisconsin where he obtained his M. S. degree in 1940. He then returned to Alaska and served as territorial veterinarian in Palmer until 1952 when he moved to Anchorage to engage in private practice.

Interment was in Manhattan, Kan.

# Women's Auxiliary

## ... Projects and Personalities

Fifteen dollars set-aside by the Tarrant County Auxiliary of Fort Worth, Texas, for a "worthy" project has mushroomed into a library for the Alabama Indians living on a reservation near Livingston, Texas.

"The project snowballed," Mrs. Leon Cloud, author of the idea, explained. After a visit to the reservation, she reported the Indian's need for a library to help prepare the children for American schools to her Auxiliary.

Three hundred books were donated by Auxiliary members, and thanks to an account of their work printed by the *Fort Worth Star-Telegram*, another 400 chil-

dren's books were sent in. Now, with the aid of \$500 from the Texas Federation of Women's Clubs, the Alabamians can meet all the requirements of a standard library.

Since library facilities are assured, the Tarrant County Auxiliary has now undertaken the provision of Girl Scout uniforms, and Fort Worth veterinarians are providing Boy Scout uniforms for the Indians.

*[Does your Auxiliary have an interesting project or an unusual member? If so, please let us know. Mail your information to: Mrs. Akin M. Simpson; 1600 Indiana Hills Dr., Big Spring, Texas.]*

### Missouri

COLUMBIA—UNIVERSITY OF MISSOURI STUDENT AUXILIARY ACTIVITIES.—It's not too soon to think about your auxiliary's Christmas activities! Here's what is being done by the members of the Women's Auxiliary to the AVMA Student Chapter at the School of Veterinary Medicine, University of Missouri.

Approximately 100 student and faculty

iary's requests for donations is always so great that the "baskets" turn into carloads.

Last year, a family of nine received clothing for each member, toys for the children, a ham for Christmas dinner, in addition to other staples and gifts. The family was selected through the United Fund Christmas Planning Service.

### Maryland

BALTIMORE—SOUTHERN V.M.A.'s AUXILIARY MEETS.—The eleventh annual meeting of the Women's Auxiliary to the Southern V.M.A. met at the Lord Baltimore Hotel, Nov. 2, 1959. Mrs. Clyde Young of Mocksville, N.C., presided.

Special guests included Dr. S. F. Scheidy, president of the AVMA, and Mrs. J. I. Cornwell, vice-president of the Women's Auxiliary to the AVMA. Mrs. Cornwell presented a discussion on public relations.

The Auxiliary also made the following donations: \$10 to the College of Veterinary Medicine at Oklahoma State University; \$25 to the AVMA Research Fund; and \$15 to the AVMA Student Loan Fund.

Newly elected officers are: Mrs. A. W. Rice, Roanoke, Va., president; Mrs. E. E. Chambers, Rossville, Ga., president-elect; Mrs. T. S. Maddox, Greenville, Ky., first vice-president; Mrs. F. E. Wilhite, Decatur, Ga., second vice-president; Mrs. J. T. Dixon, Winston-Salem, N.C., secretary; and Mrs. M. P. Sause, Baltimore, treasurer.

Last Year's Christmas "Basket" Workers



Left to Right—Mrs. William Cato; Mrs. Robert Hess, chairman; Dr. A. H. Groth, dean, School of Veterinary Medicine, University of Missouri; Mrs. Robert Smith, Auxiliary president; Mrs. Hal Jenkins, corresponding secretary of the Auxiliary.

wives assemble a king-sized Yule "basket" filled with food, clothes, and gifts. Christmas, 1960, will mark the ninth anniversary of its inauguration. Response to the Auxil-



# Benadryl<sup>®</sup>

HYDROCHLORIDE

(diphenhydramine hydrochloride, Parke-Davis)

**Antiallergic**  
**Antihistaminic**  
**Antispasmodic**

*Affords relief for animals suffering from  
common skin irritations, dermatoses  
and a variety of allergic conditions.*

Benadryl Hydrochloride is available in a variety of convenient forms including: Kapseals,<sup>®</sup> 50 mg. each; Capsules, 25 mg. each; Emplets,<sup>®</sup> 50 mg. each, for delayed action; Elixir, 10 mg. per 4 cc.; Steri-Vials,<sup>®</sup> 10 mg. per cc. for parenteral use; and a Cream (2% Benadryl Hydrochloride).

**PARKE-DAVIS**

PROFESSIONAL LITERATURE

AVAILABLE ON REQUEST

**PARKE, DAVIS & COMPANY**  
**DETROIT 32, MICHIGAN**

**PARKE, DAVIS & COMPANY, LTD**  
**MONTREAL 9, QUEBEC**

# FURADANTIN<sup>®</sup>

brand of nitrofurantoin

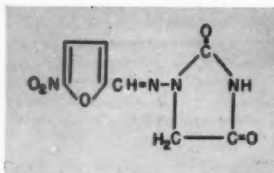
## veterinary

FURADANTIN, a clinically important member of the unique nitrofuran family, is an ideal therapeutic agent in small-animal urinary tract infections and canine tracheobronchitis. "The drug [FURADANTIN] possesses a wide antibacterial spectrum and appears to lack the bacterial-resistance-producing potential of penicillin and other antibiotics."<sup>1</sup>

FURADANTIN displays unusual effectiveness against the majority of common urinary tract pathogens, including resistant strains of *Pseudomonas* sp., *E. coli*, and staphylococci. Its rapid rate of absorption and excretion following oral administration and specific affinity for the urinary tract—where it reaches high bactericidal concentrations in the urine—help explain why FURADANTIN is the drug of choice in urinary tract disease.

FURADANTIN exhibits marked antimicrobial activity and maintains the therapeutic response even in the presence of blood and pus that may be found in the urine of affected animals. Its exceptional solubility over a wide pH range avoids the likelihood of crystalluria. Superinfections with fungi, anaphylaxis and blood dyscrasias have not been reported in animals.

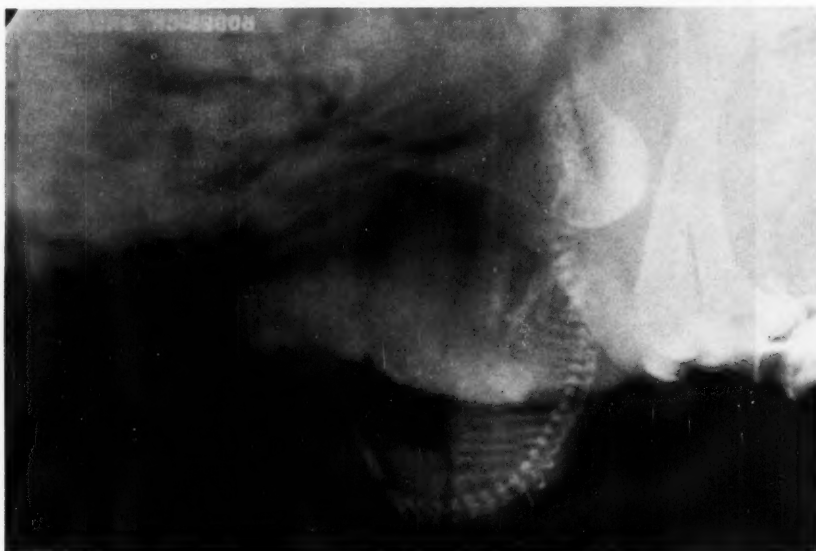
Thus with FURADANTIN the veterinary practitioner may now achieve a greater number of clinical recoveries in the daily management of small-animal urologic infections and canine tracheobronchitis.



EATON LABORATORIES, NORWICH, NEW YORK

# WHAT IS YOUR *Diagnosis?*

**Make your diagnosis from the picture below—then turn the page ►**



**Fig. 1—Radiograph of abdomen of the Cocker Spaniel.**

**History.**—A female Cocker Spaniel, 5 years old, developed a hernia in the left inguinal region. The bitch was misbred and during gestation the hernia gradually enlarged, elongated, became firm and irreducible. At term, she delivered 3 apparently normal pups unassisted but continued to strain. A lateral recumbent radiograph of the abdomen was taken.

## Here Is the Diagnosis

(Continued from preceding page)

**Diagnosis.**—Fetal skeleton present in the inguinal hernial sac.

**Comment.**—At surgery, the left uterine horn, containing a dead but otherwise normal-appearing pup, was found in the hernial sac. The pup was removed, the uterus closed and returned to the abdominal cavity. The inguinal ring was then sutured and the operation completed by closing the subcutaneous tissue and skin. Recovery was uncomplicated.

In dogs, inguinal hernias rarely occur except in the middle-aged, nonspayed females. In these, one horn, and sometimes part of the other, and the body of the

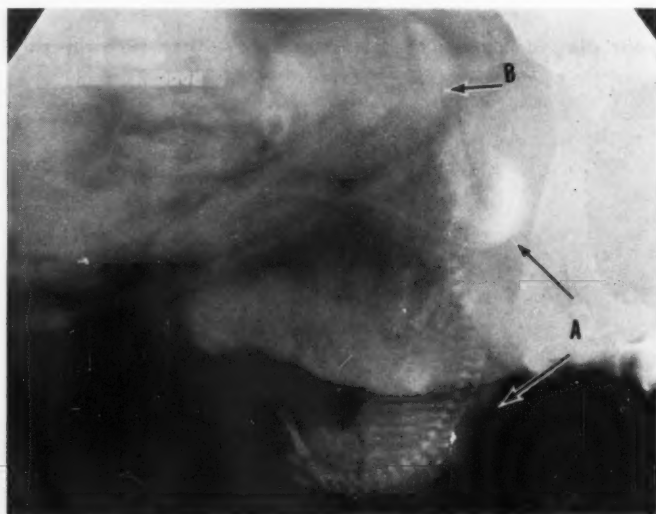


Fig. 2—Radiograph, lateral view, of the Cocker Spaniel, showing a fetal skeleton present in the inguinal hernial sac (A). Also notice the urinary bladder (B).

uterus usually make up the contents of the hernial sac. If herniorrhaphy is done in such instances, both ovarian ligaments are usually of sufficient length to allow for removal of both ovaries and the uterus through the inguinal ring.

The occurrence and disappearance of inguinal hernias in the female dog is an interesting subject.<sup>1</sup> In one experiment, excessive amounts of estrogens given to spayed bitches caused unilateral and sometimes bilateral hernias to form in 90 days. These same hernias disappeared spontaneously in one year after the estrogens were discontinued. In another experiment, a bitch with a unilateral inguinal hernia in which the hernial sac contained both horns and the body of the uterus was spayed through a midline incision. The hernial sac and inguinal ring were not disturbed other than to draw the uterus into the abdominal cavity. In one year the hernia had spontaneously disappeared.

<sup>1</sup>DeVita, J.: Endocrinology: Therapeutic Application of Endocrine Products in Small Animal Practice. Proc. A.A.H.A. (1946): 22-39.

The radiograph was presented by R. L. Snow, D.V.M., Reseda, Calif.

This diagnosis was prepared with the assistance of Wayne H. Riser, D.V.M., M.S., Kensington, Md.

Our readers are invited to submit histories, radiographs, and diagnoses of interesting cases which are suitable for publication.

in small animals

**FURADANTIN<sup>®</sup>**

brand of nitrofurantoin

**veterinary**



## **breaks the resistance barrier to clinical recovery**

**URINARY TRACT INFECTION:** FURADANTIN therapy achieved clinical recovery in over 90% of the cases of acute or chronic urogenital disease in dogs and cats.<sup>2</sup> Pronounced symptomatic improvement occurred by the 4th day and complete recovery within 7-14 days.<sup>3</sup> Coles states, "One of the advantages of nitrofurantoin [FURADANTIN] in the treatment of canine nephritis is the fact that most microorganisms do not develop resistance to the drug, even after long periods of exposure to it."<sup>4</sup>

**INDICATIONS:** nephritis, cystitis, pyelonephritis; pre- and postoperative care of the urethra and bladder; prophylaxis in catheterized patients; and as an adjunct to surgical drainage in canine prostatic abscess.

**CANINE TRACHEOBRONCHITIS:** FURADANTIN constitutes modern, effective treatment for dogs with "kennel cough". When given orally for 5 days, FURADANTIN stopped coughing in 95% of 75 cases. In some animals, signs frequently subsided in 48 hours.<sup>5</sup> Mosier concludes, "In our experience, Furadantin has been considerably more effective than the various bacterins, antibiotics, vaccines, iodides, and chemotherapeutic agents which have been recommended for the treatment of tracheobronchitis in the past."<sup>5</sup>

**available in 3 practical oral dosage forms:**

**FURADANTIN Ora-Bols<sup>®</sup> Veterinary**, provides 50 mg. FURADANTIN in an excipient containing dextrose. Bottle of 100, scored, 50 mg. Ora-Bols.

**FURADANTIN Tablets Veterinary**, bottles of 100, scored, 10 mg., and 100 mg. tablets.

**FURADANTIN Oral Suspension Veterinary**; provides 5 mg. FURADANTIN in each cc. Bottles of 60 cc.

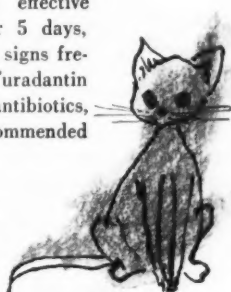
Available through your professional veterinary distributor

Nitrofurans—a unique class of antimicrobials—neither antibiotics nor sulfonamides

Ora-Bols is the Eaton tradename for small, bolus-shaped tablets.



EATON LABORATORIES, NORWICH, NEW YORK

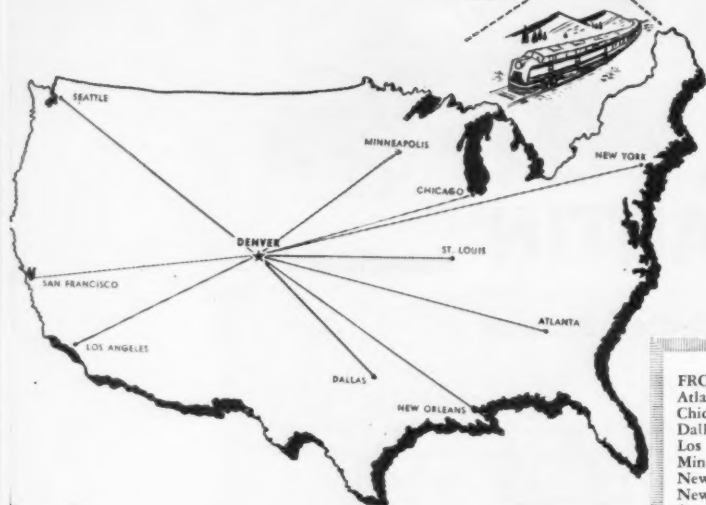


**REFERENCES:** 1. Michaelson, S. M., and Covert, M.: J. Am. Vet. M. Ass. 134:334 (Apr.) 1959. 2. Mosier, J. E., and Coles, E. H.: Vet. Med. 53:619 (Dec.) 1958. 3. Bell-off, G. B.: Calif. Vet. 9:27 (Sept.-Oct.) 1956. 4. Coles, E. H., and Mosier, J. E.: Am. J. Vet. Res. 20:1020 (Nov.) 1959. 5. Mosier, J. E.: Vet. Med. 52:445 (Sept.) 1957.



## DENVER IS EASY TO REACH

Centrally located, Denver is readily accessible from all directions by all means of transportation.



### Getting to the 97th Annual Meeting of the A.V.M.A.

Centrally located in the continental United States, the 1960 convention city is readily accessible from all directions by all means of transportation.

#### Automobile

Seven U.S. and state highways serve Denver, with U.S. highways 6, 40, 85, and 87 part of the new interstate highway systems. All-weather highways provide easy year-round travel through mountain areas.

#### Hotels and Housing

Eighteen hotels have been selected to house convention registrants. Most hotels are within walking distance of the Denver Municipal Auditorium where the program sessions will be held.

Hotel information, rates, and reservation form will be found on adv. pages 51 and 52 of this issue. A location map for hotels and some other centrally located points of interest will be found on adv. page 50.

#### Busses

Two coast-to-coast bus systems serve Denver and maintain large depots conven-

iently located to the center of the city. Both Greyhound and Trailways offer sightseeing tours through subsidiary companies.

#### Air Travel

Seven major airlines — Braniff, Central, Continental, Frontier, TWA, United, and Western — fly more than 170 arriving and departing flights into Stapleton Field daily. Denver's airport is tenth in the nation in the number of air passengers handled. Continental offers 2-hour jet service from Chicago and Los Angeles to Denver. By convention time, United will also have DC-8 service.

#### Trains

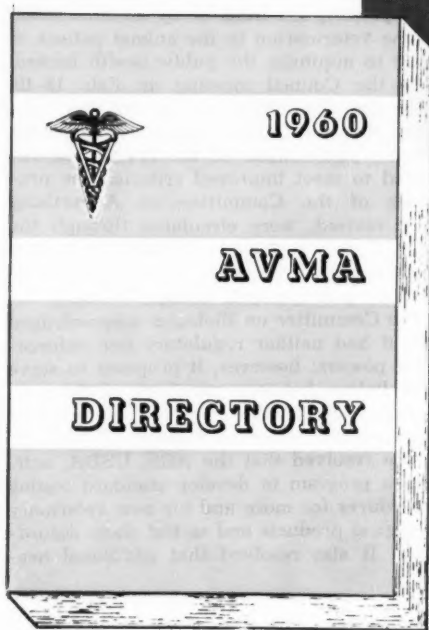
The Burlington, Colorado and Southern, Denver and Rio Grande Western, Missouri Pacific, Rock Island, Santa Fe, and Union Pacific railroads serve Denver.

The accompanying "time table" provided by the Colorado Visitors Bureau suggests the travel time by various modes of transportation from major cities to Denver.

(Organization news continued on adv. p. 40)

TRAVEL TIME TO DENVER*				
FROM:	AUTO	BUS	PLANE	TRAIN
Atlanta .....	33	40	5¾	30½
Chicago .....	23	29	3½	16½
Dallas .....	16¼	23	3¾	19
Los Angeles .....	23	31	3	28
Minneapolis .....	18	26	4	16½
New Orleans .....	28¼	38	6¼	29½
New York .....	42	50	6	30½
St. Louis .....	18½	22½	4	16¼
San Francisco .....	29	34½	3¼	30
Seattle .....	32	42	4	38½

\*Net hours—not including transfer time or stop-overs.



**19th  
EDITION**

For you...  
more  
complete  
than ever  
**A WEALTH OF  
ACCURATE  
UP-TO-DATE  
PROFESSIONAL  
INFORMATION**

**MEMBER  
PRICE \$5.00  
NON-MEMBERS  
\$10.00**

**----- GET IT NOW—PUT IT TO WORK—FOR YOU -----**

**American Veterinary Medical Association, 600 S. Michigan Ave., Chicago 5, Ill.**

Please send me \_\_\_\_\_ copies of the new 1960 AVMA DIRECTORY @ \$5.00 per copy;  
\$10.00 to non-members

(PRINT CLEARLY)

☐ PAYMENT  
ENCLOSED

☐ PLEASE  
BILL ME

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

## Report of the Meeting of the AVMA Council on Biological and Therapeutic Agents

Representatives of the Council and of the AVMA met with the representatives of the Veterinary Branch of the Food and Drug Administration in July, 1959, to informally discuss the effects of the Delaney (cancer) clause of the Food Additives Amendment of 1958 on the use of drugs by veterinarians. The conclusion at this time was that the FDA policy would not affect the practice of veterinary medicine. In February, 1960, an official meeting was requested and held with Secretary Fleming, HEW, and Commissioner George Larrick, FDA, to discuss the impact of the Delaney clause upon the veterinary profession. During this conference, Commissioner Larrick stated that FDA is not interested in regulating the practice of veterinarians, physicians, or dentists, but does intend to regulate the use of drugs hazardous to public health. The FDA has initiated a milk-truck testing program in the State of Virginia to detect antibiotic adulteration of milk.

The representatives of the AVMA at this meeting criticized the traditional concept of

ing animal health should be available only on a prescription basis or by administration by the veterinarian to the animal patient in order to minimize the public health hazard.

At the Council meeting on Feb. 18-19, 1960, the Committee on Advertising proposed that the criteria for advertising copy for the publications of the AVMA be required to meet improved criteria. The proposals of the Committee on Advertising were revised, were circulated through the Council for a second revision, and were mentioned in a previous issue of the JOURNAL (see p. 511, May 15 issue).

The Committee on Biologics acknowledged that it had neither regulatory nor enforcement powers; however, it proposes to serve as a liaison between members of the profession, associated or allied government agencies, and other associations. This Committee resolved that the ARS, USDA, activate a program to develop standard testing procedures for more and for new veterinary biological products and to test them accordingly. It also resolved that additional nec-



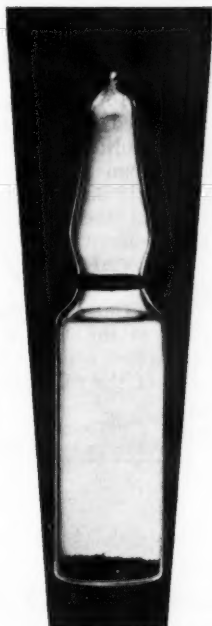
The Council on Biological and Therapeutic Agents, from left to right: Drs. John Hejl (consultant), James Saunders, Roger Link, Fred Kingma (consultant), Charles Bild, Clyde Cairy, L. Meyer Jones, K. Mayncrd Curtis, R. J. Anderson, J. D. Ray, and Carl J. Norden, Jr. Dr. John Martin was not present when the picture was taken.


"chattel property" held by the FDA because it permits the owner of a food-producing animal to administer any medication he pleases to that animal in ignorance or disregard of the public health hazard of harmful tissue residues. The AVMA representatives pointed out that many drugs used in protect-

essary funds be made available within the ARS to support the veterinary biological testing program proposed at the new National Disease Laboratory being established at Ames, Iowa.

The Committee on Therapeutic Efficacy is planning to produce monographs reviewing

(Continued on adv. p. 42)



There is nothing better than glass  for assuring full potency and activity of vaccines. With AMP-VAC glass ampuls ... no penetration of oxygen from outside ... no entrapment of oxygen inside (sealed under nitrogen).

small  
animal  
vaccines  
**Amp-Vac**<sup>TM</sup>  
*Schering*

SCHERING CORPORATION • BLOOMFIELD, NEW JERSEY

[4-390]

(Council—continued from adv. p. 40)

the properties and uses of occasional new drugs of importance to the Veterinary Commission.

The Committee on Drug Standards and Toxicology has concerned itself principally with the problem of adulteration of animal products used for human food. A special article appearing in this JOURNAL entitled, "Adulterated Milk and the Veterinarian" emanated from this Committee. The Committee also has participated in revising the "National Formulary."

The Chairman of this Committee has represented the AVMA at the United States Pharmacopoeia Convention which is preparing the next edition of the "U.S. Pharmacopoeia."

Dr. L. Meyer Jones, who has served as chairman of this Council since its formation, tendered his resignation as the result of accepting a staff position with the AVMA as director of scientific activities.

Dr. Clyde Cairy, East Lansing, Michigan, was elected chairman of the Council and Dr. K. Maynard Curtis, Kansas City, Mo., was re-elected secretary. Other members of the Council present: Dr. J. D. Ray, Whitehall, Ill.; Dr. Carl J. Norden, Jr., Lincoln, Neb.; Dr. Charles E. Bild, Miami Beach, Fla.; Dr. James R. Saunders, Jr., San Antonio, Texas; Dr. R. J. Anderson, Washington, D.C.; Dr. John E. Martin, Philadelphia, Pa.; and Dr. Roger Link, Urbana, Ill. Also present were consultants Dr. Fred J. Kingma and Dr. John Hejl, both of Washington, D.C.

## Memorial Funds Established by AVMA Research Fund

Anyone who wants to give or bequeath funds *in memoriam* may now do so under the terms of a new plan announced by trustees of the AVMA Research Fund.

For 14 years, the Fund has been collecting and expending monies in the interest of veterinary science. Usually, most of the funds collected have been expended within a year or two. Now, under one of the two following plans, a donor or testator may arrange to have his gift, bequest, or legacy held as a memorial fund so that the principal stands a good chance of remaining intact:

a) A fund to be known as the General Memorial Fund of the American Veterinary Medical Association Research Fund to which shall be credited, at the request of the donor or testator, any gift, bequest, or legacy in the amount of \$5,000 or more.

b) A fund identified by the name of any person designated by the donor or testator—i.e., (Name of Person) Memorial Fund of the American Veterinary Medical Association Research Fund—to be established at the request of the donor or testator in the case of a gift, bequest, or legacy in the amount of \$50,000 or more.

Funds so established will be held separately, invested and reinvested by the trustees, and the income used for research and graduate training in veterinary science. The prin-

cipal can be used only when the trustees determine that strict adherence to such policy would prevent the accomplishment of the purposes for which each fund is established, and even then not more than 5 per cent in any one year.

Persons interested in these plans should write to the Secretary, AVMA Research Fund, 600 S. Michigan Ave., Chicago 5.

## APPLICATIONS

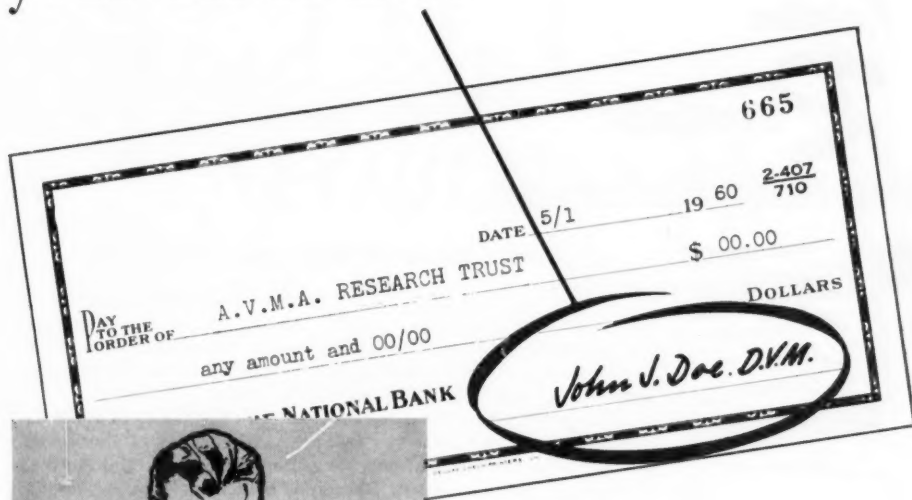
### Applicants Not Members of Constituent Associations

In accordance with paragraph (c) of Section 1, Article I, of the Bylaws, the names of applicants who are not members of constituent associations shall be published in the JOURNAL. Written comments received by the Executive Secretary from any active member regarding the application as published, will be furnished to the Judicial Council for its consideration prior to acceptance of the application.

MC CONNELL, U. STANLEY  
125 Jan Van Nassastraat (APO 169, N.Y., N.Y.)  
The Hague, Holland.  
D.V.M., Colorado State University, 1935.  
Vouchers: Curtis W. Betzold and Everett B. Miller.



your name here



**BOARD OF TRUSTEES**

S. F. SCHEIDY V.M.D.  
E. E. LEASURE D.V.M.  
D. J. ANDERSON D.V.M.  
H. E. KINGMAN Jr. D.V.M.

gives  
needed help  
**HERE**

Names are always important—but none quite as important as those at the bottom of the checks which come to the A.V.M.A. RESEARCH TRUST . . . the names of veterinarians who have realized the importance of making a contribution to veterinary research . . . in contributions like these lies an important part of the solution of problems now troubling the veterinary profession.

The A.V.M.A. RESEARCH TRUST has pledged itself with the help of the profession to raise a minimum of \$50,000.00 in 1960. To reach the goal will require a new and concerted effort on the part of every veterinarian . . . your name at the bottom of a personal check will help a lot . . . remember all contributions are income-tax exempt . . . send your contribution today to the

**A.V.M.A. RESEARCH TRUST**

600 South Michigan Avenue • Chicago 5, Illinois

BRIAN M. FORSTER,  
DIRECTOR OF PUBLIC INFORMATION

The strength of veterinary organizations and the extent of professional progress rely greatly on communication between the members of various veterinary groups. Communication must be two way, and the groups have a responsibility to inform their members of programs and progress.

There were 87 veterinary medical publications as of April 1, according to a recent survey by the AVMA. Sixty of these use photographs. Six publications are national. They are the *American Journal of Veterinary Research*, *Bulletin of the American Animal Hospital Association*, *Federal Veterinarian*, *Journal of the American Veterinary Medical Association*, *Modern Veterinary Practice*, and *Veterinary Medicine*.

Thirty-three of the 50 state constituents of the AVMA publish magazines or newsletters while 9 of some 300 local organizations report regular publication of a newsletter. The *New York City Veterinarian* and Southern California V.M.A. Pulse are the only two magazines published by local organizations.

In addition there are 15 house publications of pharmaceutical manufacturers. The 20 schools and colleges of veterinary medicine also produce 15 publications.

Canada has 2 national publications and 4 provincial veterinary medical associations have newsletters or magazines.

These publications are valuable links in the intraprofessional communication chain. News of organization activities, personal achievements of members, scientific information from practitioner case reports, names of land-grant college and extension personnel, and abstracts are made available to the members through these publications.

Some association officers write annual newsletters to their group members outlining past accomplishments and present activities.

The Public Information Department of the AVMA publishes a monthly *Veterinary PR Roundup* which is circulated to public relations committee chairmen. Abstracts of articles in public re-

(Continued on adv. p. 46)



# dependable!

## **NEOBLU** aerosol

An effective spray medication for the treatment, prevention and control of infectious keratitis in cattle and sheep.



The NEOBLU formula includes neomycin, gentian violet, boric acid and benzocaine. It is compounded to promote fast healing, reduce irritation and inflammation, and to prevent infections.

*Each aerosol bomb normally provides over fifty treatments.*



**Corn Belt Laboratories, inc.**

producers of biologicals and pharmaceuticals  
for the graduate Veterinarian exclusively  
EAST ST. LOUIS, ILLINOIS and convenient depots  
Tel. UPTon 4-3333

Co-Owner and Operator of

**AFFILIATED LABORATORIES INC.**



(PR PAGE—continued from adv. p. 44)

lations journals, journalism trade magazines, case histories, and PR reports from veterinary public relations committees are circulated in this publication.

The Women's Auxiliary News keeps veterinarians' wives abreast of the activities of other Auxiliary members throughout North America. Published annually, it contains Auxiliary committee reports, programs, and program evaluations.

#### Auxiliary's Clipping Service

The AVMA has found the newspaper clippings provided by the Public Relations Media Committee of the Women's Auxiliary a valuable addition to communications. The experiences of one veterinary medical association in resisting "leash laws" were covered in a collection of clippings. These were helpful to another association, trying to determine its course when similar legislation was being considered for its community.

Receiving as much information as possible, correlating information, and getting it back to the members, is a valuable contribution to professional progress made by veterinary medical publications.

## Quiz for Quidnuncs

1. What is the most recent advancement made to assure potency of modified live virus rabies vaccines? Page 538.
2. To what drugs have bacteria commonly isolated from small animals been shown to be most sensitive (*in vitro*)? Page 552.
3. What special equipment has been successfully employed to facilitate placement of an endotracheal tube in a dog? Page 555.
4. Of what significance is the apparent rarity of bone tumors in Beagles? Page 564.
5. How successful is acrylic compound in immobilizing mandibular fractures in dogs? Page 560.

clip and mail today

# Nicholson News

news of latest  
developments  
in veterinary  
equipment  
by Nicholson

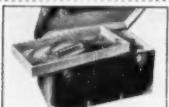
clip and mail today



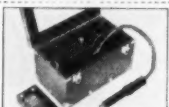
**NEW ELECTRIC TATTOO**  
instrument stops "Collie Nose" in a hurry just by tattooing affected area. Send coupon for free folder.



**HOSPITAL SIGN LETTERS** of bright plastic help you create your own handsome clinic or hospital sign. Custom built signs available. Send coupon for free folder.



**NEW VETERINARY CASES** of baked enamel over steel will "dress up" your visits to clients. Brass trim, many sizes, geared to serum bottles, instruments. Send for free folder.



**ELECTRONIC FIRING IRON** is the only safe, modern way to fire horses, remove tumors. A Nicholson Laboratories invention. Send for our free folder.



**NEW COPON KENNEL PAINT** is our unique plastic finish that renews old, rusty kennels; makes them shiny and bright. Brush, spray or roll on. Send for free folder.



**NEW ELECTRONIC EJACULATOR** is the Trans-Jector. Weighs only 16½ pounds. May be operated on 110 or 12 v. car battery without accessories! Write for free folder.

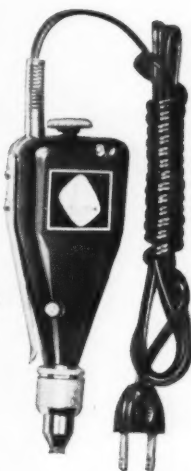


**RADIANT HEAT PANEL** makes a perfect inexpensive, warm bed for small animals coming from surgery. Shock-proof, uses almost no current. You just plug it in. Send for free folder.



**B.T.V. BRANDING IRON** is all-electric heats in just 90 seconds! Weighs only 11 ounces. Choice of brands. Write for free folder.

new  
10 needle  
tattoo  
instrument  
stops  
"Collie Nose"  
symptoms  
in a hurry



Solar dermatitis, primarily known as "Collie Nose", can be a real problem to treat with lasting results.

Recently, work at the state university here in Colorado showed that tattooing unpigmented areas of the canine's nose with special ink would stop "Collie Nose." Coloring the skin areas stops the irritation of the sun's rays and permits the inflammation to clear promptly and permanently.

Nicholson developed a high-speed electric tattoo instrument with 10 needles. This way, whole areas of skin can be tattooed in a hurry and without the usual tedium.

May we send you our new leaflet on the Nicholson electric tattoo instrument? Check the coupon below.

- |  |   |
|--|---|
| <input type="checkbox"/> new electric tattoo | <input type="checkbox"/> Copon kennel paint   |
| <input type="checkbox"/> Plexi-Sign letters  | <input type="checkbox"/> Trans-Jector         |
| <input type="checkbox"/> veterinary cases    | <input type="checkbox"/> radiant warmer panel |
| <input type="checkbox"/> firing iron         | <input type="checkbox"/> branding iron        |

**Free Information Folders** Just fill in this handy coupon, paste on a postcard and mail. We'll gladly send you our newest folders about the Nicholson instrument you've checked. No obligation whatsoever.

DVM

street

city

**Nicholson Manufacturing Inc.** 3990 Ulster Street Denver 7, Colorado

clip and mail today

clip and mail today



IN CANINE DERMATOSES

# Ultracortenol®

(prednisolone trimethylacetate CIBA)



## **"DISCIPLINED" ANTI-INFLAMMATORY ACTION GIVES YOU BETTER RESULTS**

**Return a Frolicking Pet to Its Grateful Owner:** A single intramuscular dose generally reduces inflammation, relieves itching, and promotes repair of painful lesions in canine dermatitis.<sup>1-3</sup> Duration of therapeutic action is "disciplined": persists 5 to 10 days,<sup>1-3</sup> long enough to give these desirable results, but not so long as to cause complications. Additional injections are usually unnecessary.<sup>1-3</sup>

**Optimal duration of action, convenience, and economy are 3 good reasons for using Ultracortenol in nonspecific canine dermatitis.**

Complete information available on request.

**SUPPLIED:** Multiple-dose Vials, 10 ml., each ml. containing 10 mg. or 25 mg. prednisolone trimethylacetate in suspension for intramuscular injection.

**References:** 1. Pollock, S.: Vet. Med. 54:97 (Feb.) 1959. 2. Hoffer, S. H.: Clinical report to CIBA. 3. Weir, H. T., and Hazelrig, J. W.: Clinical report to CIBA.

ULTRACORTENOL is available at ethical veterinary distributors throughout the United States.

**C I B A**  
SUMMIT, NEW JERSEY

Effective veterinary drugs,  
products of exacting research

2/3784 VK

## History of the AVMA

By comparison with most of the semiannual meetings, that for 1887, held at the Veterinary Department of the University of Pennsylvania, was a beehive of activity. The question of admitting nongraduates to membership was discussed; at the annual meeting it was decided thereafter to admit "only graduates from professional schools."

In response to a discussion of the pleuropneumonia problem by D. E. Salmon, it was noted that "most of the members expressed their belief in the mediate [i.e., indirect] contagiousness of contagious pleuropneumonia, and all condemned inoculation so long as the possibility of extermination of this disease exists by means of slaughter of diseased and exposed animals." Resolutions to this effect were passed, as was one commending the work of the Bureau of Animal Industry.

On the subject of bovine tuberculosis, it was resolved: "That the attention of all boards of health throughout the country be called to the necessity of a rigid and competent inspection of all milk dairies and slaughterhouses . . . [and] That all boards of health should have attached to their staff *qualified veterinarians* to carry on such inspection." Drs. Huidekoper, Winchester, and Salmon were deputized "to publish this action of the Association in circular form and send it to the different Boards of Health of each State and Territory."

At the annual meeting, held at the American Veterinary College, the Committee on Diseases reported on the prevalence of chicken cholera, hog cholera, rabies, anthrax, glanders and farcy, tuberculosis, pleuropneumonia and cerebrospinal meningitis.

Elected as the new slate of officers were: president, R. S. Huidekoper; vice-president,

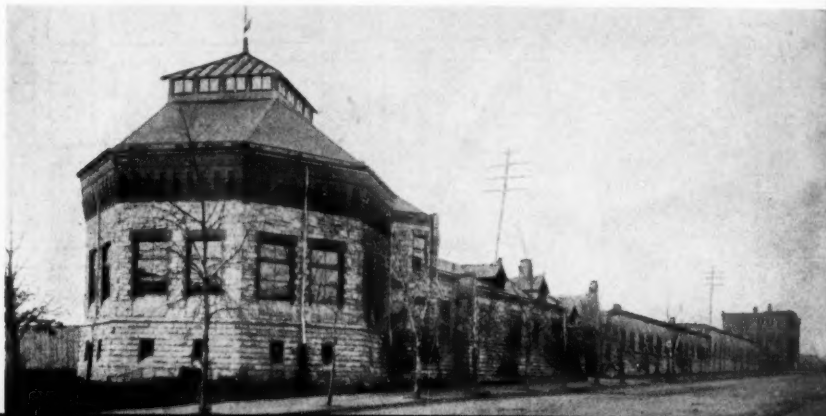
J. C. Meyer, Jr.; secretary, C. B. Michener; and treasurer, J. L. Robertson. Among new members admitted were Tait Butler and D. E. Salmon.

In editorial comment upon the Philadelphia meeting, Dr. Liautard observes that it "varied from the custom of former meetings in proving to be an interesting and highly profitable meeting . . . The good that such gatherings might always accomplish . . . if the membership could but be brought to realize their duty to each other and to the community, are well illustrated by this meeting and its results."

Regarding the proposal to admit only graduates: "The time has fully come when the Association should make an effort to establish itself as the representative of the *regular* profession, and abolish the custom of begging for membership, which has already too long prevailed." Somewhat inconsistent, Liautard later referred to the bill of the Committee on Army Legislation, urging the rank of Colonel for veterinarians, as "a project which can hardly hope to command success."

At the annual meeting, however: "Nothing, absolutely nothing, was done . . . The committees . . . failed to report anything of value . . . and after an unprofitable and insignificant discussion on the nature of cerebrospinal meningitis the meeting adjourned." Much of the time, apparently, had been taken up with what terminated in "an unconstitutional vote" to accept a prize essay which had been rejected by the Committee on Prizes. Earlier, Liautard had suggested that the failure of the Association to discharge its obligations might be blamed on the officers. As president through 1887, however, he does not offer an explanation for the unproductive meeting.

The University of Pennsylvania about 1887, site of the AVMA annual meeting.



# MAP OF DOWNTOWN DENVER



# HOTEL INFORMATION—DENVER, COLORADO, CONVENTION

**Ninety-Seventh Annual AVMA Meeting, Aug. 14-18, 1960**

**All requests for hotel accommodations will be handled by a Housing Bureau in cooperation with the Denver Convention and Visitors Bureau. The Bureau will clear all requests and confirm reservations.**

## Hotel and Rate Schedule

(See Location, by Number, on Map of Downtown Area)

Map No.	Hotel	Single (1 person)	Double bed (2 persons)	Twin bed (2 persons)	Suites	Sets-2 rooms connecting bath (2-3-4 persons)
1	Adams*	\$5.50-7.50	\$ 7.50-9.00	\$ 8.50-10.50	\$13.50-15.00	\$ 9.50-16.00 (1 Room, 2dbl. beds)
2	Albany†	6.50-9.50	10.00-12.00	12.50-14.00	30.00	- - - - -
3	Ambassador	5.50-6.00	7.00-7.50	9.00	- - - - -	- - - - -
4	Argonaut*†	6.50-9.50	8.50-11.00	9.50-12.50	- - - - -	13.50-17.50
5	Auditorium*	5.00	6.50	7.00	- - - - -	8.00-12.00
6	Broadway Plaza†	8.00-10.00	10.00-12.00	12.00-14.50	18.00-28.00	- - - - -
7	Brown Palace†	9.00-15.00	13.00-17.00	14.00-19.00	22.00-70.00	18.00-22.00
8	Colorado*	4.50-6.00	6.00-10.00	8.00-12.00	- - - - -	14.00-20.00
9	Cory	5.00-7.00	6.00-9.00	6.50-9.00	- - - - -	- - - - -
10	Cosmopolitan*	8.50-11.00	12.00-18.00	14.00-20.00	22.00-60.00	- - - - -
11	Hillview	9.00-11.50	10.00-12.00	12.00-13.50	16.00-18.00	- - - - -
12	Hilton*†	HEADQUARTERS HOTEL — Reserved exclusively for official convention use.				
13	Kenmark (not a/c)	4.50-6.50	6.00-7.00	7.50-8.00	- - - - -	6.00-12.00
14	Mayflower*	7.50-14.50	8.50-16.50	12.50-18.50	- - - - -	- - - - -
15	Olin*	5.00-7.00	9.00-11.00	10.00-12.00	- - - - -	11.00-16.00
16	Oxford	5.00-10.00	6.50-10.00	8.50-11.00	13.00-16.00	- - - - -
17	Sears	5.00-6.00	6.50	7.50	- - - - -	14.00 (For 2-3-4 persons)
18	Shirley Savoy*	7.00-9.00	9.50-11.50	11.00-13.00	25.00	15.00-19.00

†100 per cent air-conditioned; in other hotels listed, majority of rooms air-conditioned.

**\*FAMILY PLAN**—The above hotels offer a "family plan" whereby children under 12 years of age will be accommodated in the same room with their parents at no extra charge. If more than one room is required to accommodate children, the hotel will charge only the single rate for each room.

**MOTELS**—Reservations for motels in the Denver area may be made through the Denver Convention and Visitors Bureau, 225 West Colfax, Denver 2, Colo.

**PLEASE USE APPLICATION ON REVERSE SIDE FOR HOTEL ACCOMMODATIONS**

# Application for Hotel Accommodations

## 1960 AVMA Convention — Denver, Colorado

The Convention and Visitors Bureau will make every effort to place you according to your expressed wishes or, if the accommodations of your choice are not available, the Housing Bureau will select one that is nearest to the preferred rate and location.

Please give us the complete information requested below. At least four choices of hotels, or more if you desire, are necessary. Arrange for double occupancy of rooms wherever possible; only a limited number of single rooms is available.

Date .....

Hotel ..... First Choice

Hotel ..... Second Choice

Hotel ..... Third Choice

Hotel ..... Fourth Choice

☐ Room with bath for one person. Rate per room desired \$..... to \$.....

☐ Room with bath for ..... persons. Rate per room desired \$..... to \$.....

☐ double bed ☐ twin beds

☐ Two rooms with connecting bath for ..... persons:

Rate per set desired \$..... to \$.....

☐ Suite with ..... bedroom(s) with bath for ..... persons:

Rate per suite desired \$..... to \$.....

☐ Check here if you desire accommodations on the FAMILY PLAN.

Arrival date ....., hour ..... A.M. .... P.M.

Departure date .....

If reservations cannot be made in one of the hotels indicated shall we place you elsewhere? ☐ Yes ☐ No

If you have a few days before or after the convention that you would like to enjoy in the mountains please check the appropriate box to receive free information:

☐ Sightseeing trip ☐ Dude Ranches ☐ Resorts ☐ Housekeeping cabins

Rooms will be occupied by (NAMES OF ALL PARTIES MUST BE LISTED)

PLEASE PRINT

NAME	STREET ADDRESS	CITY	STATE

Name .....

Street Address .....

City ..... State .....

MAIL TO: Convention and Visitors Bureau, 225 West Colfax Avenue, Denver 2, Colorado

**Reservations will be confirmed directly to those who return this form and it should be received not later than July 25, 1960**



**For  
Effective  
Distemper  
Immunization**



**CANINE DISTEMPER VACCINE**

MODIFIED LIVE VIRUS

Chick Embryo Origin, vacuum dried

Unique stabilizing menstruum used in manufacture:

- Protects the viability of the attenuated live virus during processing and storage.
- Assures high potency of vaccine after prolonged storage when kept under refrigeration.

Available in packages of 10 vials (2 cc.) of dried vaccine and 10 stoppered vials (2 cc. each) of neutral diluent, especially prepared for the solution of the vaccine.

Information and prices sent on request.

**Winthrop**

**LABORATORIES**

1450 Broadway, New York 18, N. Y.

## COMING MEETINGS

Notices of coming meetings must be received 30 day before date of publication.

Michigan State Veterinary Medical Association. Annual summer meeting. Pantlind Hotel, Grand Rapids, Mich., June 14-16, 1960. John J. Godisak, Coopersville, Mich., chairman.

Purdue University. International symposium on growth: molecule, cell, and organism. Purdue University, Lafayette, Ind., June 16-18, 1960. For additional information, write: Dr. M. X. Zarrow, Department of Biological Sciences, Life Science Building, Purdue University, Lafayette, Ind.

Georgia Veterinary Medical Association. Fifty-fourth annual meeting. Jekyll Island, Ga., June 19-21, 1960. A. M. Mills, 325 Pinecrest Dr., Athens, Ga., secretary.

Mississippi State Veterinary Medical Association, Inc. Annual meeting. King Edward Hotel, Jackson, June 19, 1960. Joseph W. B'anson, P. O. Box 4223, Fondren Sta., Jackson, Miss., secretary-treasurer.

North Carolina Veterinary Medical Association. Fifty-ninth annual summer meeting. Grove Park Inn, Asheville, June 21-23, 1960. J. T. Dixon, 3026 South Main St., Winston-Salem, N.C., secretary-treasurer.

Utah Veterinary Medical Association. Annual meeting. Richfield, Utah, June 23-24, 1960. J.A. Thomas, P. O. Box 592, Provo, Utah, secretary.

California Veterinary Medical Association. Seventy-second annual meeting. Jack Tar Hotel, San Francisco, Calif., June 26-29, 1960. Mr. Ken Humphreys, 3004 16th St., San Francisco 3, Calif., executive secretary.

Iowa State University. Annual conference for veterinarians. Memorial Union, Iowa State University, Ames, July 12-13, 1960. Address the program committee at Iowa State for additional information.

Virginia Veterinary Medical Association. Summer meeting. Shoreham Hotel, Washington, D.C., July 17-19, 1960. G. B. Estes, State Office Building, Richmond, Va., secretary-treasurer.

Kentucky Veterinary Medical Association. Forty-ninth annual convention. Sheraton-Seelbach Hotel, Louisville, July 18-19, 1960. L. S. Shirrell, 545 East Main, Frankfort, Ky., secretary.

Auburn University. Fifty-third annual conference for veterinarians. School of Veterinary Medicine, Auburn University, July 24-27, 1960. J. E. Greene, dean.

Canadian Veterinary Medical Association. Twelfth annual meeting. Halifax, Nova Scotia, July 24-27, 1960. For reservations, write: Dr. M. D. Harlow, Box 1153, Halifax, Nova Scotia, Can.

Louisiana Veterinary Medical Association, Inc. Annual meeting. Monteleone Hotel, New Orleans, Aug. 1-2, 1960. Robert K. Morris, 406 W. McNeese St., Lake Charles, La., secretary.

American Association of Veterinary Bacteriologists. Annual meeting. Division of Veterinary Science, University of Wyoming, Laramie, Wyo., Aug. 13, 1960. Charles H. Cunningham, Department of Microbiology and Public Health, Michigan State University, East Lansing, Mich., secretary.

American Veterinary Medical Association. Ninety-seventh annual meeting. Denver-Hilton Hotel, Denver, Colo., Aug. 15-18, 1960. H. E. Kingman, Jr., 600 S. Michigan Ave., Chicago 5, Ill., executive secretary.

Armed Forces Institute of Pathology. Seventh annual course. Armed Forces Institute of Pathology, Washington, D.C., Sept. 26-30, 1960. Deadline for applications is August 15. To apply, write: The Director, Armed Forces Institute of Pathology, Washington 25, D.C.

Gaines Dog Research Center. Tenth annual symposium. Kankakee Civic Auditorium, Kankakee, Ill., Oct. 12, 1960. Dean C. A. Brandly, School of Veterinary Medicine, University of Illinois, Urbana, Ill., chairman.

Eastern Iowa Veterinary Association, Inc. Forty-seventh annual meeting. Hotel Montrose, Cedar Rapids, Oct. 13-14, 1960. Grant B. Munger, 1921 First Ave., S. E., Cedar Rapids, Iowa, secretary.

Southern Veterinary Medical Association, Inc. Annual meeting. Francis Marion Hotel, Charleston, S.C., Oct. 23-26, 1960. Otto M. Strock, 461 Maybank Highway, Charleston, S.C., general chairman.

Animal Care Panel. Annual convention. Sheraton-Jefferson Hotel, St. Louis, Mo., Oct. 26-28, 1960. Herbert Graff, 835 S. 8th St., St. Louis, Mo., convention secretary.

## Foreign Meetings

International Congress of Physio-Pathology of Animal Reproduction and Artificial Insemination, Amsterdam, Netherlands, June 13-17, 1960. Dr. J. Edwards, Milk Marketing Board, Thames, Surrey, England.

First International Congress of Endocrinology. Technical University of Denmark, Copenhagen, July 18-23, 1960. Dr. Christian Hamburger, Statens Seruminstitut, Copenhagen S, Denmark, chairman of the executive committee.

Second International Course on Lyophilization. Lyon, France, Aug. 29—Sept. 9, 1960. For full details, contact: Dr. Louis R. Rey, Directeur des Cours Internationaux de Lyophilisation, Laboratoire de Physiologie, Ecole Normale Supérieure 24, rue Lhomond, Paris 5, France.

Fourth International Congress on Animal Reproduction. The Hague, Netherlands, June 5-9, 1961. For additional information contact: the Secretariat of the Fourth International Congress on Animal Reproduction, 14, Burge-meester de Monchylein, The Hague, Netherlands, Dr. L. Hoedemaker, secretary to the organizing committee.

Eighth International Congress of Animal Husbandry. Hamburg, Germany, June 13, 1961.

## Regularly Scheduled Meetings

ALABAMA—Central Alabama Veterinary Medical Association, the first Thursday of each month. James L. Chambers, 4307 Normanbridge Rd., Montgomery, Ala., secretary-treasurer.

Jefferson County Veterinary Medical Association, the second Thursday of each month. Dan P. Griswold, Jr., 714 S. 39th St., Birmingham, secretary.

(Continued on adv. p. 56)

a  
dietary food  
for  
mature dogs  
for use in the  
clinical management  
of

## summer dermatoses

A "PRESCRIPTION DIET"®

SOLD ONLY TO  
GRADUATE  
VETERINARIANS

*You can't beat  
good food  
for good health*



PROFESSIONAL PRODUCTS DIVISION

HILL PACKING COMPANY, TOPEKA, KANS.

(Meetings—continued from adv. p. 54)

Mobile-Baldwin Veterinary Medical Association, the third Tuesday of each month. Cecil S. Yarbrough, 4121 U.S. 90 West, Mobile, Ala., secretary.

North Alabama Veterinary Medical Association, the second Thursday of November, January, March, May, July, and September, in Decatur, Ala. Ray A. Ashwander, P.O. Box 1767, Decatur, Ala., secretary.

Northeast Alabama Veterinary Medical Association, the second Tuesday of every other month. Leonard J. Hill, P.O. Box 761, Gadsden, Ala., secretary-treasurer.

ALASKA—Anchorage Group of the Alaska V. M. A., the last Wednesday of each month at Fort Richardson Officers' Club or Thompson's Restaurant, 6th and I Streets, Anchorage, Alaska. Lt. Colonel E. H. Akins, Surgeon's Office, USARAL, Fort Richardson, Alaska, secretary to the Alaska V. M. A.

ARIZONA—Central Arizona Veterinary Medical Association, the second Tuesday of each month. John D. Clark, 518 West Oak St., Scottsdale, Ariz., secretary.

Southern Arizona Veterinary Medical Association, the third Wednesday of each month at 7:30 p.m. Gwyn Chapin, 2215 E. Calle Vista, Tucson, Ariz., secretary.

ARKANSAS—Pulaski County Veterinary Medical Society, the second Tuesday of each month. Harvie R. Ellis, 54 Belmont Drive, Little Rock, Ark., secretary-treasurer.

CALIFORNIA—Alameda-Contra Costa Veterinary Medical Association, the fourth Wednesday of every month. L. M. Proctor, 24 Meadow Lane, Concord, Calif., secretary.

Bay Counties Veterinary Medical Association, the second

Tuesday of February, April, July, September, and December. Herb Warren, 3004 16th St., San Francisco, Calif., executive secretary.

Central California Veterinary Medical Association, the fourth Tuesday of each month. Dr. Marilyn Lewis, 2145 E. Pico, Fresno 26, Calif., secretary.

Humboldt-Del Norte Counties Veterinary Medical Association, the second Tuesday of January, May, September, and November. Dr. M. Lunstra, P. O. Box 734, Eureka, Calif., secretary-treasurer.

Kern County Veterinary Medical Association, the first Thursday evening of the month. Francis Dawson, 2007 Nile St., Bakersfield, Calif., secretary-treasurer.

Mid-Coast Veterinary Medical Association, the first Thursday of each month. William P. Matulich, P. O. Box 121, San Luis Obispo, Calif., secretary-treasurer.

Monterey Bay Area Veterinary Medical Association, the third Wednesday of each month. V. Todorovic, 47 Mann Ave., Watsonville, Calif., secretary.

Northern California Association of Veterinarians, the second Tuesday of the month. George Crenshaw, 1137 8th St., Orland, Calif., secretary.

North San Joaquin Valley Veterinary Medical Association, the fourth Wednesday of each month at the Hotel Covell in Modesto, Calif. Kenneth E. Erwin, Box 841, Manteca, Calif., secretary.

Orange Belt Veterinary Medical Association, the second Monday of each month. K. R. Wilcox, P.O. Box 98, Upland, California, secretary-treasurer.

(Continued on adv. p. 58)

## STOCKWELL "FULL LINE" VETERINARIAN TABLES

the only "full line" of tables designed to fit every Veterinarian's needs

### ALL NEW FLUOROSCOPIC TABLE

Features attractive specially constructed top—developed exclusively for fluoroscopic work. All non-metallic Formica top is no-glare, non-stain, and scratch proof.

Standard Black Enamel Base model.....\$ 89.50

Deluxe Chrome-Plated Base model..... 109.50

available from  
leading suppliers



### DELUXE ALL STAINLESS HYDRAULIC TABLE

Rugged-built for "lifetime" service. Super-size operating surface; top tilts and locks; all chromed cast parts; caster mounted for storage and portability. Moderately priced at \$279.50

WRITE FOR SPECIFICATIONS OF ALL TABLES

**TED STOCKWELL MFG. CO. — MORENCI, MICHIGAN**



#### ADDITIONAL MODELS

#### STAINLESS STEEL EXAM TABLE

For pre-surgery treatment. All steel construction. Two models.

#### STAINLESS STEEL OPERATING TABLE

Economy unit with high priced features. Standard or deluxe.

#### ALL STAINLESS NON-HYDRAULIC OPERATING TABLE

Finest veterinary table made with best features of any non-hydraulic model.

MERCK & CO., INC.  
CHEMICAL DIVISION  
RAHWAY, NEW JERSEY



# IN EVERY STERIOD INDICATION

*...Hydeltrone®—T.B.A. helps reverse the pathological process!*

**Intramuscular** in the treatment of: bovine KETOSIS.

STRESS associated with: RETAINED PLACENTA, obstinate MILK FEVER, GRASS TETANY and SURGERY, LAMINITIS or FEED FOUNDER in cattle and horses; canine and feline DERMATOLOGIC DISORDERS, nonspecific LAMENESS, ARTHRITIS, SPONDYLITIS, VERTEBRAL DISC SYNDROME, SUMMER ECZEMA, ALOPECIA, OTITIS (with topical or systemic antibiotic treatment).

STRESS conditions associated with SYSTEMIC INFECTIONS (with appropriate antibacterial therapy) and TRAUMA.

**Intrasynovial** in the treatment of: RHEUMATOID ARTHRITIS, SPRAINS, BURSITIS (Wind Puffs, Road Puffs, Carpititis, Sore Knees, Thoroughpin, etc.).

Inflammation of articulations following TRAUMA or SURGICAL MANIPULATION.

**Prolonged** action—local or systemic—reduces need for short-interval repeat therapy.

**Prompt**, striking relief of symptoms [complete or conspicuous reduction in joint pain in 12-24 hours].

**Slow solubility** minimizes systemic effects  
...anti-inflammatory action is entirely local when given by intrasynovial injection.

**PACKAGE INFORMATION:**

No. 55491—Suspension HYDELTRONE—T.B.A. (20 mg./cc. of prednisolone tertiary-butyacetate) in 5 cc. multiple-dose vials. Sold to veterinarians only.

## HYDELTRONE T.B.A.

(PREDNISOLONE TERTIARY-BUTYLACETATE)

©MERCK & CO., INC.

©TRADEMARK OF MERCK & CO., INC. FOR ITS BRAND OF PREDNISOLONE TERTIARY-BUTYLACETATE.



# M·A·C



**Quick relief for Bone,  
Bursal or Tendon Lameness**

**Single Bottle.....\$2.00**

**3 and 1 free.....5.00**

**6 and 2 free.....9.00**

**12 and 4 free.....17.00**

**24 and 4 free.....28.00**

**CARTER-LUFF CHEMICAL CO.  
Hudson, N. Y.**

Orange County Veterinary Medical Association, the third Thursday of each month. H. M. Stanton, 1122, S.E. U.S. Highway 101, Tustin, Calif., secretary.

Peninsula Veterinary Medical Association, the third Tuesday of the month, Arthur L. Gilger, 2905 South El Camino Real, San Mateo, Calif., secretary-treasurer.

Redwood Empire Veterinary Medical Association, the third Thursday of the month. R. R. Rediske, 833 Valjejo Ave., Novato, Calif., secretary-treasurer.

Sacramento Valley Veterinary Medical Association, the second Thursday of each month with the location speci-

fied monthly. Eugene C. Story, 4819 "V" St., Sacramento 17, Calif., secretary.

San Diego County Veterinary Medical Association, the fourth Tuesday of the month. Robert F. Burns, 7572 North Ave., Lemon Grove, Calif., secretary-treasurer.

San Fernando Valley Chapter SCVMA, the second Tuesday of each month at 7:30 p.m., Hody's Restaurant, North Hollywood, Calif. Jack Darling, 8615 Lindley, Northridge, Calif., secretary-treasurer.

San Fernando Valley Veterinary Medical Association, the second Friday of each month at the Casa Escobar Restaurant in Studio City. John Chudacoff, 7912 Sepulveda Blvd., Van Nuys, Calif., secretary.

San Francisco Veterinarians, every other month—meetings decided at previous sessions. J. Wachs, 317D Sacramento St., San Francisco, Calif., secretary-treasurer.

Santa Barbara-Ventura Counties Veterinary Medical Association, every three months, no set date. Gerald M. Clark, 5415 8th St., Carpinteria, Calif., secretary-treasurer.

Santa Clara Valley Veterinary Medical Association, the last Tuesday of the month. Robert L. King, 1269 Grant St., Santa Clara, Calif., secretary-treasurer.

Southern California Veterinary Medical Association, the third Wednesday of the month. Mr. Don Mahan, 1919 Wilshire Blvd., Los Angeles 57, Calif., executive secretary.

Tulare County Veterinary Medical Association, the second Thursday of each month at the Tagus Ranch, Tulare. Larry A. Jackson, 12191 Lacey Blvd., Hanford, Calif., secretary-treasurer.

**COLORADO**—Denver Area Veterinary Medical Society, the fourth Tuesday of every month. Charles H. Garvin, 12024 E. 14th Ave., Aurora 8, Colo., secretary-treasurer.

Northern Colorado Veterinary Medical Society, the first Wednesday of each month, in Fort Collins. E. J. Carroll, Dept. of Clinics and Surgery, Colorado State University, Fort Collins, Colo., secretary.

**DELAWARE**—New Castle County Veterinary Medical Association, the first Tuesday of each month at 9:00 p.m. in the Hotel Rodney, Wilmington, Del. A. P. Mayer, Jr., R.F.D. 2, Newark, Del., secretary-treasurer.

**DISTRICT OF COLUMBIA**—District of Columbia Veterinary Medical Association, the second Tuesday evenings of January, March, May, and October. R. B. Goehenour, 10109 Ashwood Dr., Kensington, Md., secretary-treasurer.

**FLORIDA**—Big Bend Veterinary Medical Association, meets the first Sunday of each month at 5:00 p.m. at the Tallahassee Dining Room, Tallahassee. Mrs. Robert E. Lee, P.O. Box 3236, Tallahassee, Fla., acting secretary.

Central Florida Veterinary Medical Association, the first Friday of each month at 8:00 p.m.; place specified monthly. William L. Sippel, P.O. Box 847, Kissimmee, Fla., secretary.

Florida West Coast Veterinary Medical Association, the second Wednesday of each month at the Lighthouse Inn, St. Petersburg. S. H. Carr, P.O. Box 1206, Dunedin, Fla., secretary.

Hillsborough Veterinary Medical Society, the second Monday of every month; time and place are specified monthly. J. H. Rogers, 311 N. Ben Avon Dr., Tampa, Fla., secretary-treasurer.

Jacksonville Veterinary Medical Association, the first Thursday of every month at the Green Turtle Restaurant, at 8:00 p. m. Edwin G. Clampett, 5150 Love Grove Rd., Jacksonville 7, Fla., secretary.

Northwest Florida Veterinary Medical Society, third Wednesday of each month; time and place specified

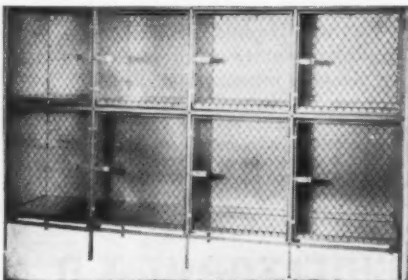
## Kennel Cage Units

of Wire Mesh and Metal

**IN TWO TIERS: 4, 6, and 8 cage units**

**IN THREE TIERS: 6, 9, and 12 cage units**

Sanitary, durable, easily maintained; galvanized materials; removable pans; hand woven wire mesh doors, maximum light and ventilation; sized for dogs and cats; removable partitions; shipped crated; easily assembled.



**THE EIGHT CAGE UNIT**

Shipped unassembled, saves freight charges  
Terms may be arranged

**EAST RIVER WIRE WORKS**

39-40 Twenty-First St., Long Is. City 1, N.Y.

monthly; David B. Aronson, 923 Belair Road, Pensacola, Fla., secretary.

Palm Beach Veterinary Society, the last Thursday evening of each month. McArthur Dairy Building, Four Points, W. Palm Beach. D. L. Lichty, 700 Hollywood Place, West Palm Beach, Fla., secretary.

Pinellas County Veterinary Society, the first Monday of January, February, April, May, July, August, October, and November at the Fort Harrison Hotel, Clearwater, Fla., at 7:30 p.m. L. H. Sellers, Jr., 3813 Tyrone Blvd., St. Petersburg, Fla., secretary.

Ridge Veterinary Medical Association, the fourth Thursday of each month in Bartow, Fla. John S. Haromy, Route 1, Box 107-A, Lake Wales, Fla., secretary.

South Florida Veterinary Society, the third Wednesday of each month; time and place specified quarterly. E. J. Gissendanner, 1665 N.E. 123rd St., North Miami, Fla., secretary.

Suwannee Valley Veterinary Medical Association, meets each fourth month; time and place specified quarterly. G. L. Burch, P.O. Box 405, Ocala, Fla., secretary.

Volusia County Veterinary Medical Association, the fourth Thursday of each month. Robert E. Cope, 127 E. Mason, Daytona Beach, Fla., secretary.

GEORGIA—Atlanta Veterinary Medical Society, the third Thursday of each month at the Elk's Home, 726 Peachtree St., Atlanta, Richard Montgomery, P.O. Box 222, Morrow, Ga., secretary-treasurer.

East Georgia Veterinary Medical Association, quarterly, date and meeting place varies. Hugh F. Arundel, P.O. Box 153, Statesboro, Ga., secretary.

Georgia-Carolina Veterinary Medical Association, the second Monday of each month at 8:00 p.m., at the Town Tavern, Augusta, Ga. James M. Hawk, 700 E. Buena Vista Ave., North Augusta, S. C., secretary.

North Georgia Veterinary Medical Association, quarterly, no set date, the spring meeting at the Veterinary School, Athens, Ga. S. J. Shirley, Commerce, Ga., secretary.

South Georgia Veterinary Medical Association, the second Sunday of each quarter at 3:30 p.m., at the Radium Springs Hotel, Albany, Ga. M. W. Hale, Route 2, Tifton, Ga., secretary.

HAWAII—Honolulu Veterinary Society, the third Tuesday evening of January, March, May, July, September, and November. Howard H. Furomoto, 1135 Kapahulu Ave., Honolulu, Hawaii, secretary-treasurer.

ILLINOIS—Central Illinois Veterinary Medical Association, June 9, Sept. 9, and Dec. 10, 1959. Howard Bennett, 120 W. Jefferson St., Petersburg, Ill., secretary-treasurer.

Chicago Veterinary Medical Association, the second Tuesday of each month, Charles H. Armstrong, 1021 Davis St., Evanston, secretary.

INDIANA—Calumet Area Veterinary Medical Association, the first Thursday of each month. Bruce Sharp, Box 166, Hobart, Ind., secretary-treasurer.

Central Indiana Veterinary Medical Association, the second Wednesday of each month. L. Bruce Horrall, Mooresville, Ind., secretary.

Michiana Veterinary Medical Association, the second Thursday of every month except July and December, at the Hotel LaSalle, South Bend, Ind. Stanton Williamson, 217 W. Chippewa St., South Bend, Ind., secretary.

---

# | announcing...

a unique NEW SERVICE for professional men to

- ★ SAVE HOURS OF READING TIME
- ★ TRIPLE THE USEFULNESS OF PROFESSIONAL JOURNAL FILES

We invite you to examine this service now—

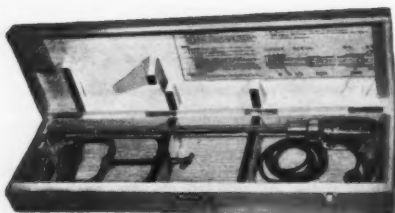
## PROFESSIONAL MEN'S INDEXING SERVICE VETERINARY DIVISION

You'll find this service . . . designed by professionals for professionals . . . useful in practice, research, teaching and regulatory work . . . includes articles in this journal among those indexed monthly.

This service guarantees you will never miss an important article when it runs . . . guarantees you can always find it quickly when you wish a reference.

*Watch your mail for details coming soon — or write today to:*

**PROFESSIONAL MEN'S INDEXING SERVICE**  
VETERINARY DIVISION, 222 SOUTH EIGHTH STREET, ST. LOUIS 2, MISSOURI



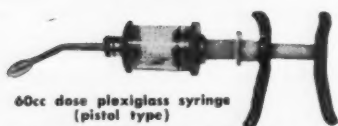
Gastrotomy Instruments ▶



◀ Electric dental float



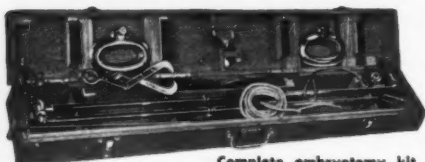
Hock restraint device



60cc dose plexiglass syringe  
(pistol type)



electric vaginoscope  
(plexiglass cylinder)



Complete embryotomy kit

**MORIN** Fabricant  
15 Avenue Bosquet PARIS VII°

Northwestern Indiana Veterinary Medical Association, the fourth Thursday of each month, except August, January, and February. Harvey R. Smith, R.R. 2, Box 30, Lowell, Ind., secretary-treasurer.

Tenth District Veterinary Medical Association, the third Thursday of each month. J. S. Baker, P.O. Box 52, Pendleton, Ind., secretary.

IOWA—Cedar Valley Veterinary Medical Association, the second Monday of each month, except January, July, August, and October in Black's Tea Room, Waterloo, Iowa. E. L. Koch, Plainfield, Iowa, secretary.

Central Iowa Veterinary Medical Association, the third Monday of each month, except June, July, and August at 6:30 p.m., Breeze House, Ankeny, Iowa. S. L. Hendricks, secretary-treasurer.

Coon Valley Veterinary Medical Association, the second Wednesday of each month, September through May, at Bradford Hotel, Storm Lake, at 7:30 p.m. V. R. Howie, Manson, Iowa, secretary.

East Central Iowa Veterinary Medical Association, the third Thursday of each month at 6:30 p.m., usually at the Hotel Roosevelt in Cedar Rapids, Iowa. T. F. Bartley, P.O. Box 454, Cedar Rapids, secretary.

Fayette County Veterinary Medical Association, the third Thursday of each month at 6:30 p.m. in West Union, Iowa. M. F. Frevert, West Union, secretary.

North Central Iowa Veterinary Medical Association, the third Thursday of April, at the Warden Hotel, Fort Dodge, Iowa. H. Engelbrecht, P. O. Box 797, Fort Dodge, secretary.

Northeast Iowa-Southern Minnesota Veterinary Association, the first Tuesday of February, May, August, and November at the Wisneslick Hotel, Decorah, Iowa, 6:30 p.m. Donald E. Moore, Box 178, Decorah, Iowa, secretary.

Northwest Iowa Veterinary Medical Association, the second Tuesday of February, May, September, and December, at the Community Building, Sheldon. Warren Verploeg, Paulina, Iowa, secretary.

Southeastern Iowa Veterinary Association, the first Tuesday of each month at Mt. Pleasant. H. D. McCreedy, Ottumwa, Iowa, secretary.

Southwestern Iowa Veterinary Medical Association, the first Tuesday of April and October, Hotel Chieftrain, Council Bluffs. F. S. Sharp, Red Oak, Iowa, secretary.

Upper Iowa Veterinary Medical Association, the third Tuesday of each month at All Vets Center, Clear Lake, at 7:00 p.m. Delmar Diercks, Rockwell, secretary.

KENTUCKY—Central Kentucky Veterinary Medical Association, the first Wednesday of each month. R. H. Folsom, P.O. Box 323, Danville, Ky., secretary.

Jefferson County Veterinary Society of Kentucky, Inc., the first Wednesday of each month in Louisville or within a radius of 50 miles, except January, May, and July. G. R. Comfort, 2102 Reynolds Lane, Louisville, Ky., secretary-treasurer.

LOUISIANA—New Orleans Veterinary Medical Association, the fourth Thursday of every month at the Monteleone Hotel, New Orleans, at 8:30 p. m. Roy D. Hock, 938 Esplanade Ave., New Orleans 16, La., secretary-treasurer.

MARYLAND—Baltimore City Veterinary Medical Association, the second Thursday of each month, September through May (except December), at 9:00 p.m., at the Park Plaza Hotel, Charles and Madison St., Baltimore Md. Leonard D. Krinsky, 6111 Hartford Rd., Baltimore, Md., secretary.

DIET DIRECTIONS

*Whole fish  
Puss'n Boots  
every day!*

**MOST  
NOURISHING  
DIET...**

*...you can recommend for daily feeding*

Veterinarians are aware that a glowing "look of health" is a sure sign of balanced nutrition.

And since they're in a far better position than most to observe the effects of various foods, it's not surprising that so many recommend a daily diet of Puss 'n Boots—the cat food that creates glossy, finer coats, bright eyes, strong teeth and

bones and plenty of wholesome playful energy.

As the table shows, the nutrients in whole fish (including the fillets), selected cereals, and extra Vitamins B<sub>1</sub> and E compare favorably with those found in a variety of human foods. This is to emphasize that a Puss 'n Boots diet is self-sufficient...does best when consistently followed.

**EVERY DAY—ALL THIS NOURISHMENT IN EVERY 8 OZ. CAN**

SUNDAY  
MONDAY  
TUESDAY  
WEDNESDAY  
THURSDAY  
FRIDAY  
SATURDAY



A can of Puss 'n Boots has twice as much calcium—for strong bones—as a 10 oz. glass of milk.

There is more protein in a can of Puss 'n Boots than in a juicy lamb chop.

Puss 'n Boots contains two times as much blood-building iron as a cup of steamed spinach.

In Puss 'n Boots there is as much riboflavin—for healthy eyes—as in an equal serving of lean raw beef.

*Plus other vital nutrients essential to your cat's well-being.*



**PUSS'n  
BOOTS**

*Once a day—Every day—  
for lifelong nutrition*

Available in 8-oz. and 15-oz. sizes  
Coast Fisheries Division of  
The Quaker Oats Company,  
Chicago 54, Illinois

**MICHIGAN**—Central Michigan Veterinary Medical Association, the first Wednesday of every month at 7 p.m. Jerry Fries, 2070 E. Main St., Owosso, Mich., secretary.

Mid-State Veterinary Medical Association, the fourth Thursday of each month with the exception of November and December. Robert W. Acton, 4110 Spring Rd., Jackson, Mich.

Saginaw Valley Veterinary Medical Association, the last Wednesday of each month. Alvin R. Conquest, P.O. Box 514, Grand Blanc, Mich., secretary.

Southeastern Michigan Veterinary Medical Association, the fourth Wednesday of every month, September through May. Louis J. Rossoni, 24531 Princeton Ave., Dearborn 8, Mich., secretary.

**MINNESOTA**—Lake Region Veterinary Medical Association, quarterly meetings, with time and place specified prior to each meeting. J. A. Strache, Battle Lake, Minn., secretary-treasurer.

**MISSOURI**—Greater St. Louis Veterinary Medical Association, the first Friday of each month (except July and August), at the Coronado Hotel, Lindell Blvd. and Spring Ave., St. Louis Mo., at 8 p.m. Edwin E. Epstein, 4877 Natural Bridge Ave., St. Louis 15, Mo., secretary.



## CHIPPER CHARLIE

Never been sick a day in his life. But he knows it can happen to him—so he gets a health check-up every year—just in case. He also supports the American Cancer Society's Crusade. Send your contribution to "Cancer," in care of your local post office.

**AMERICAN CANCER SOCIETY**



Kansas City Veterinary Medical Association and Kansas City Small Animal Hospital Association, the third Thursday of each month at the Hotel President, Kansas City, Mo. Iain M. Paton, 12203 W. 70th Ter., Kansas City, Mo., secretary.

**NEVADA**—Western Nevada Veterinary Society, the first Tuesday of each month. Paul S. Silva, 1170 Airport Road, Reno, Nev., secretary.

**NEW JERSEY**—Central New Jersey Veterinary Medical Association, the second Thursday of November, January, March, and May at Old Hights Inn, Hightstown, N. J. David C. Tudor, R.D. 1, Box 284A, Cranbury, N. J., secretary.

Metropolitan New Jersey Veterinary Medical Association, the third Wednesday evening of each month from October through April, except December, at the Irvington House, 925 Springfield Ave., Irvington, N.J. Bernard M. Weiner, 787 Clinton Ave., Newark, N.J., secretary.

Northern New Jersey Veterinary Association, the fourth Tuesday of each month at the Elks Club, Hackensack. James R. Tanzola, Upper Saddle River, N.J., secretary.

Northwest Jersey Veterinary Society, the third Wednesday of every odd month. L. S. Nilsson, Jr., 224 Hardwick St., Belvidere, N. J., secretary-treasurer.

Southern New Jersey Veterinary Medical Association, the fourth Tuesday of each month at the Collmont Diner, Collingswood, N.J. Jay Simmons, 247 South White Horse Pike, Audubon, N. J., secretary.

**NEW MEXICO**—Bernalillo County Veterinary Practitioners Association, the third Wednesday of each month, Fex Club Albuquerque. Donald W. Fitzgerald, 1825 Lomas Blvd., N.E., Albuquerque, N.M., secretary-treasurer.

**NEW YORK**—New York City, Inc., Veterinary Medical Association of, the first Wednesday of each month at 8:00 p. m., October to June inclusive, at the New York University Medical Center, Alumni Auditorium, 550 First Ave. (between 30th and 31st St.) New York City, N.Y. C. E. DeCamp, 24 Warwick Ave., Scarsdale, N.Y., secretary.

Monroe County Veterinary Medical Association, the first Thursday of even-numbered months except August. Irwin Bircher, 40 Meredith St., Rochester 9, N. Y., secretary-treasurer.

**NORTH CAROLINA**—Central Carolina Veterinary Medical Association, the second Wednesday of each month at 7:00 p.m. in the O'Henry Hotel, Greensboro. W. A. Sumner, 3741 High Point Rd., Greensboro, N.C. secretary.

Eastern North Carolina Veterinary Medical Association, the last Tuesday evening of each month, time and place specified monthly. Byron H. Brow, Box 453, Goldsboro, N. Car., secretary-treasurer.

Piedmont Veterinary Medical Association, the last Friday of each month. J. G. Martin, Boone, N. Car., secretary.

Twin Carolinas Veterinary Medical Association, the third Friday of each month at Orange Bowl Restaurant, Rockingham, N. Car., at 7:30 p.m. J. E. Currie, 690 N. Leak St., Southern Pines, N. Car., secretary.

Western North Carolina Veterinary Medical Association, the third Thursday of every month at 7:00 p.m. in the George Vanderbilt Hotel, Asheville, N. Car. H. A. Justus, 924 Lakeside Dr., Hendersonville, N. Car., secretary.

**OHIO**—Cincinnati Veterinary Medical Association, the third Tuesday of every month at Shuller's Wigwam, 6210 Hamilton Ave., at North Bend Rd., Ronald A. Meeks, 11081 Springfield Pike, Cincinnati 15, Ohio, secretary.

Clark County Veterinary Medical Association, meetings



held quarterly; time and place irregular. R. Edmondson, South Charleston, Ohio, secretary-treasurer.

Columbus Academy of Veterinary Medicine, the third Thursday of every month, September through May; place irregular. Earl Simondson, 3120 Valley View, Columbus, Ohio, secretary.

Cuyahoga County Veterinary Medical Association, the first Wednesday in September, October, December, February, March, April, and May, at 9:00 p.m., at the Carter Hotel, Cleveland, Ohio. R. W. Stockstill, 6545 Mayfield Rd., Cleveland, Ohio, secretary.

Dayton Veterinary Medical Association, the first Tuesday of every month, Pappy's Kitchen Klub, 5102 W. Main St. Dr. William Pumpelly, 6801 Airway Rd., Dayton, Ohio, secretary-treasurer.

Fifth District Veterinary Medical Association, meetings held quarterly; time and place irregular. E. J. Kersting, 115 Sheffield Rd., Columbus, Ohio, secretary.

Gauga County Veterinary Medical Society, the third Wednesday of each month, at the Manor House, Newberry, Ohio, at 1:00 p.m. Peter J. Clemens, Jr., R. D. 2, Chagrin Falls, Ohio, secretary.

Kilbuck Valley Veterinary Medical Association, the first Wednesday of alternate months beginning with February; place irregular. Charles Gale, Ohio Agricultural Experiment Station, Wooster, Ohio, secretary-treasurer.

Knox County Veterinary Medical Association, meetings irregular. F. O. Haberman, Centerville, Ohio, president.

Lorain County Veterinary Medical Association, the second Wednesday of April, June, October, December, and

**BROKEN TEETH**

—repaired in bottom clipper blades.  
Top and bottom blades sharpened to  
match. Save money—Guaranteed.  
Prices on Request

**HIGHLY SPECIALIZED SHARPENING**  
Sales—Repairing on Oster  
and Stewart clippers.

**Sharpened Blades Tested on Rabbit Fur**

OSTER A-2      STEWART  
**Prompt Service—Est. 25 years**

MAIL TO

**CLIPPER SERVICE**

February; place irregular. G. W. Bunyan, 37200 Detroit Rd., Avon, Ohio, secretary-treasurer.

Madison County Veterinary Medical Association, quarterly; date and place irregular. James Herman, Mechanicsburg, Ohio, secretary-treasurer.

Mahoning County Veterinary Medical Association, the fourth Tuesday of each month at 9:00 p.m., at the Maennerchor Club, Youngstown. Sam Segall, 2935 Glenwood Ave., Youngstown, Ohio, secretary-treasurer.

Miami Valley Veterinary Medical Association, the first Wednesday of December, March, June, and September; place irregular. L. J. Grilliot, Route 1, Troy, Ohio, secretary-treasurer.

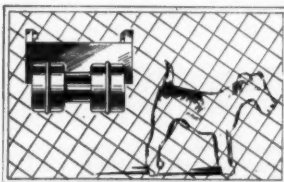


#### SPECIFICATIONS

Twin 3" nozzles. Air output 2800 linear ft. per min. at normal room temps. 115 Volt, 60 cycle single-phase self-cooling AC operation. Finished in satin black enamel with silver screen.

For additional details write:

**Machinery Division, SUN RAY HAIR PREP. CO.**  
**a division of M. LANGHAUS & SON ENTERPRISES**  
2404 Fuller St., N. Y. 61, N. Y.



**EASILY** transferred from cage to cage, this lightweight unit hooks onto any type cage with special 'non-slip' hooks.

## NEW! Square Sun

### PORTABLE, TWIN BLOWER

# HEATER & DRYER

### WILL NOT OVERHEAT!

Super efficient, finest quality lightweight heater and dryer ever devised. Special individual heat control for warm or cool air. NEW heavy duty heating element provides hours of constant heat . . . cuts drying time in half. Motor and blowers guaranteed for 1 year.

## PORTABLE DOG PENS



LOW PRICES!

**CARRYING CAGES & LAB PENS**  
For veterinarians, laboratories, kennels, show animals, etc. Made to order. Large or small. Heavy ga. metal & wire. Strong yet light. Low prices. State size wanted.



**DO-IT-YOURSELF CHAIN LINK FENCE**  
Build your own fence. We furnish plans, materials. State size. Send Sketch. Catalog, prices free.

**BRINKMAN MFG. CO.**  
Dept. 50      Huntton & Auburn Rd.      Topaka, Kan.

Sectional design, permanent or portable. Strong, rugged. Long life. Welded galvanized pipe frame. Chain link fence. Discourages climbing. Improves ventilation, cleanliness. Less disease. Designed and built for your purpose. Send sketch, size.



North Central Ohio Veterinary Medical Association, the last Wednesday of each month, except during the summer months; place irregular. Ben Henson, 268 S. Main St., Mansfield, Ohio, secretary-treasurer.

Northeastern Ohio Veterinary Medical Association, meetings and place irregular. James Bridenstine, East Orwell, Ohio, secretary.

Northwestern Ohio Veterinary Medical Association, the last Wednesday of March and July; place irregular. F. C. Hartman, 3904 Rushland Ave., Toledo, Ohio, secretary-treasurer.

Ross County Veterinary Medical Association, meetings and place irregular. W. A. Hirsch, Chillicothe, secretary-treasurer.

South Central Ohio Veterinary Medical Association, the third Thursday of each month at the Jo-Kar Restaurant, Lancaster. James Hagely, Lancaster, Ohio, secretary.

Southeastern Ohio Academy of Veterinary Medicine, every other month; time and place irregular. M. S. Phillips, Athens, Ohio, secretary.

Southern Ohio Veterinary Medical Association, meetings held quarterly at Wilmington; time irregular. S. E. Peterson, 1093 Rombach Ave., Wilmington, Ohio, secretary-treasurer.

Stark County Veterinary Medical Association, the second Tuesday of every month, at Holiday Inn, W. Tuscarawas St., Canton, Robert Leed, 5500 Cleveland Ave., N.W., North Canton, Ohio, secretary-treasurer.

Summit County Veterinary Medical Association, the last Tuesday of every month (except June, July, and August), at the Mayflower Hotel, Akron, Ohio. M. L. Scott, 42 W. Market St., Akron, Ohio, secretary-treasurer.

Toledo Veterinary Medical Association, every other month; date and place irregular. F. C. Hartman, 3904 Rushland Ave., Toledo, Ohio, corresponding secretary.

Tri-County Veterinary Medical Association, the fourth Wednesday of January, May, and September; place irregular. Mrs. Fred Guenther, Springboro, Ohio, secretary-treasurer.

Trumbull County Veterinary Medical Association, meet three or four times a year; time and place irregular. S. A. Hanawalt, P.O. Box 117, Kinsman, Ohio, secretary-treasurer.

West Central Veterinary Medical Association, third Thursday of February, June, September, and November, at the Lima Club, Lima. K. R. Heidt, 1055 Spencerville Rd., Lima, Ohio, secretary-treasurer.

Wheeling Valley Veterinary Medical Association, meetings held quarterly; time and place irregular. Earl

Weaver, 1406 S. Zane Rd., Martins Ferry, Ohio, vice-president.

**OKLAHOMA**—Oklahoma County Veterinary Medical Association, the second Wednesday of every month, 7:30 p.m., Patrick's Foods Cafe, 1016 N.W. 23rd St., Oklahoma City. Claude A. Tigert, 3032 N.W. 68th St., Oklahoma City, Okla., secretary.

Tulsa Veterinary Medical Association, the third Thursday of each month at the City-County Health Building, 4616 E. 15th St., Tulsa, Okla. R. H. Leonard, 410 N. 31st St., Muskogee, Okla., secretary.

Tulsa Association of Small Animal Veterinarians, first and third Mondays. City-County Health Dept. R. H. Featherston, 3129 S. Winston, Tulsa 5, Okla., secretary.

**OREGON**—Portland Veterinary Medical Association, the second Tuesday of each month, at 7:30 p.m. Ireland's Restaurant, Lloyd's, 718 N.E. 12th Ave., Portland. Donald L. Moyer, 8415 S.E. McLoughlin Blvd., Portland 2, Ore., secretary.

Willamette Veterinary Medical Association, the third Tuesday of each month, except July and August, at the Marion Hotel, Salem. Robert J. Mallorie, P.O. Box 155, Silverton, Ore., secretary.

**PENNSYLVANIA**—Keystone Veterinary Medical Association, the fourth Wednesday of each month at the University of Pennsylvania School of Veterinary Medicine. Raymond C. Snyder, N.E. Corner 47th St. and Hazel Ave., Philadelphia 43, Pa., secretary.

Lehigh Valley Veterinary Medical Association, the first Thursday of each month. Stewart Rockwell, 10th and Chestnut Sts., Emmaus, Pa., secretary.

Pennsylvania Northern Tier Veterinary Medical Association, the third Wednesday of each odd numbered month. R. L. Michel, Troy, Pa., secretary.

**SOUTH CAROLINA**—Piedmont Veterinary Medical Association, the third Wednesday of each month at the Fairforest Hotel, Union, S. Car. John W. Dantzler, 272 Wiles St., Orangeburg, S. C., secretary.

**TEXAS**—Coastal Bend Veterinary Medical Association, the third Wednesday of each month, at 8:00 p.m.; place varies. Carl A. Keller, 6103 Highway 9, Corpus Christi, Texas, secretary-treasurer.

Dallas County Veterinary Medical Association, the first Tuesday of each month at 7:30 p.m., at a place to be specified. Frank N. Black, 12830 Preston Rd., Dallas, Texas, corresponding secretary.

**UTAH**—Salt Lake Small Animal Hospital Association, the first Monday of every month, at the Holiday Inn, 3040 South State St., Salt Lake City, at 12:15 p.m. Douglas H. McKelvie, 1220 S. State St., Salt Lake City, Utah, secretary-treasurer.

**VIRGINIA**—Central Virginia Veterinary Association, the second Thursday of each month at 8:00 p.m., except July and August, at a place in Richmond to be announced monthly. Edwin M. Crawford, secretary-treasurer.

Northern Virginia Veterinary Conference Association, the second Tuesday of each month. T. P. Koudelka, P.O. Box 694, Harrisonburg, Va., secretary.

Northern Virginia Veterinary Society, the second Wednesday of every third month. Meeting place announced by letter. H. C. Newman, Box 145, Merrifield, secretary.

Southwest Virginia Veterinary Medical Association, the first Thursday of each month. D. F. Watson, Blacksburg, secretary.

**WASHINGTON**—Seattle Veterinary Medical Association, the third Monday of each month, Magnolia American

QUICK,  
EFFECTIVE  
TREATMENT  
FOR  
TOPICAL  
INFECTIONS

# KERASPRAY®

Keraspray provides 4 potent antibacterials, plus a local anesthetic. This broad antibacterial activity makes it especially useful as a topical dressing following closure of surgical incisions, dehorning and castration.

In the easy-to-use plastic insufflator, Keraspray offers effective therapy for infected wounds, ear and eye infections—specifically keratitis.



ONE PUFF  
IS USUALLY ENOUGH



in  
large  
AND  
small  
animals

Each Gm. contains:

Neomycin sulfate . . . 0.25%  
Phenylmercuric nitrate . 0.005%  
Sulfanilamide . . . . . 86.25%  
Sulfisoxazole . . . . . 10.0%  
Tetracaine hydrochloride 0.5%

**Supply:** 5 Gm., 14 Gm. and  
30 Gm. plastic insufflators.

**THE S. E. MASSENGILL COMPANY**

Veterinary Division  
BRISTOL, TENNESSEE



## Dr. Vincent Marshall Joins Corn States Staff

Dr. Vincent Marshall has joined the staff of Corn States Laboratories, Inc. as a virologist in biological development.

Dr. Marshall holds three degrees from Cornell University: B.S. in animal husbandry; D.V.M.; and a M.S. in virology. He



Dr. Vincent Marshall

was research associate in virus and bacteriology for 4 years at Cornell's Research Institute and was with the U.S. Agricultural Marketing Administration for 1½ years.

He is a member of the AVMA and the Society of American Bacteriologists.

## REGULARLY SCHEDULED MEETINGS—continued from adv. p. 64

Legion Hall, 2870 32nd W., Seattle. Roy C. Toole, 10415 Main St., Bellevue, secretary.

South Puget Sound Veterinary Association, the second Thursday of each month except July and August. B. D. Benedictson, 3712 Plummer St., Olympia, Wash., secretary.

**WEST VIRGINIA**—Kyowva (Ky., Ohio, W. Va.) Veterinary Medical Association, the third Thursday of each month in the Hotel Pritchard, Huntington, W. Va., at 8:30 p.m., Harry J. Fallon, 200 5th St., W. Huntington, W. Va., secretary.

**WISCONSIN**—Central Wisconsin Veterinary Medical Association, the second Wednesday of each quarter (March, June, September, and December). E. D. Baker, 1418 LaSalle Ave., Barron, Wis., secretary.

Coulee Region Veterinary Medical Association, the third Wednesday of every other month. F. N. Petersen, Box 127, Cashton, Wis., secretary.

Dane County Veterinary Medical Association, the second Thursday of each month. All but the special meetings will be held at the Top Hat Restaurant, Middleton. Robert E. Hall, 5718 Dogwood Place, Madison 5, Wis., secretary-treasurer.

Milwaukee Veterinary Medical Association, the third Tuesday of each month, at the Half-Way House. Blue Mound Rd. Dr. Raymond Pahle, 10827 W. Oklahoma Ave., Milwaukee, Wis.

Northeastern Wisconsin Veterinary Medical Association, the third Wednesday in April. William Madison, 218 E. Washington St., Appleton, Wis., secretary.

Rock Valley Veterinary Medical Association, the first Wednesday of each month. L. C. Allenstein, 209 S. Taft St., Whitewater, Wis., secretary.

Southeastern Veterinary Medical Association, the third Thursday of each month. John R. Curtis, 419 Cook St., Portage, Wis., secretary.

Southwestern Wisconsin Veterinary Medical Association, the first Thursday of every other month. James D. Leary, Soldiers Grove, Wis., secretary.

Wisconsin Valley Veterinary Medical Association, the second Tuesday of every other month. John B. Fleming, 209 E. 4th St., Marshfield, Wis., secretary.

**Silver King** VET & RANCH CHUTE  
5 MODELS

"WORLD FAMOUS RANCH EQUIPMENT"

**HELDENBRAND & SON**  
P.O. BOX 2367 CE 2-1316 NITE ME 4-4033  
OKLAHOMA CITY, OKLAHOMA

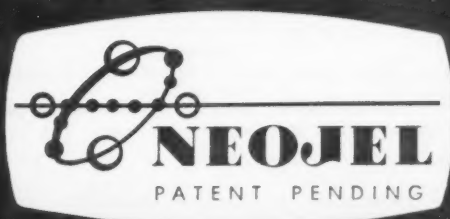
## New Scientific Terms Adopted

The National Bureau of Standards is using four new quantity-indicating prefixes adopted by the International Committee on Weights and Measures. "Tera" indicates a trillion (1,000,000,000,000); "giga" indicates a billion (1,000,000,000); "nana" means a billionth (0.000,000,001); and "pico" a trillionth (0.000,000,000,0001). Other prefixes already in use are "mega" (1,000,000,000), "kilo" (1,000), "hecto" (100), "deka" (10), "deci" (0.1), "centi" (0.01), "milli" (0.001), and "micro" (0.000,001).—*Sci. News Letter*, 76, (1959): 324.

Over  
9,000,000 doses of

**NEO·VAC**

with



used to fight

**ERYSIPELAS** in

**Turkeys and Swine**  
with excellent results

a product of research from

**DIAMOND LABORATORIES**  
DES MOINES, IOWA



## CLASSIFIED ADVERTISEMENTS

**PERSONAL WANT ADS**—\$4.00 for the first 25 words and 10 cents for each additional word; 35 cents for use of box number.

**TOTAL WORD COUNT** must include complete box number address (7 words) or personal address line.

**COMMERCIAL WANT ADS**—\$5.00 for the first 25 words, 25 cents for each additional word; \$1.00 for use of box number. (See paragraph above for total word count.)

**Remittance must accompany ad.**

### DEADLINES

**1st of month issue** — 8th of month preceding date of issue.

**15th of month issue** — 22nd of month preceding date of issue.

Names of classified advertisers using key letters can not be supplied. Address your reply to the box number, c/o JOURNAL of the AVMA, 600 S. Michigan Ave., Chicago 5, Ill., and it will be sent to the advertiser.

### Wanted—Veterinarians

Wanted—relief veterinarian for mixed practice, predominately dairy cattle, for the month of August, 1960. Address Gerald Thorington, Rushford, N. Y.

Wanted—assistant for small animal hospital in St. Paul-Minneapolis area. State qualifications and personal background. Experience not necessary. Address Box E 18, JOURNAL of the AVMA.

Wanted—veterinarian for meat inspection at a small packing plant in Wisconsin. Salary—\$750 per month. Address Box F 3, JOURNAL of the AVMA.

Wanted—veterinarian; staff of modern, well-equipped AAHA small animal hospital, suburb of New York City. Details and salary expected in first letter. Address Box F 13, JOURNAL of the AVMA.

Wanted—2 experienced veterinary pharmaceutical detailmen with nutritional background for exclusive ethical product line. Automobile and usual fringe benefits. Give complete resume, references and salary requirements in first letter. Address Box F 14, JOURNAL of the AVMA.

### VETERINARY PHARMACOLOGIST

To head Veterinary Pharmacology Department for an ethical veterinary pharmaceutical house. Qualified applicant should be either Ph.D. Pharmacologist or D.V.M. with Pharmacology training. Position will afford professional growth and opportunity with expanding Research Staff. State qualifications, present position and salary. Address Box E 1, JOURNAL of the AVMA.

Wanted—veterinarian to join incorporated group practice in Connecticut. High salary with profit participation and ultimate ownership possible. Address Box F 12, JOURNAL of the AVMA.

Wanted—experienced small animal or general practitioner to travel and represent ethical product line of a major manufacturer. Travel and usual fringes furnished. State salary needed, professional qualifications and references in initial answer. A rewarding new career opportunity for man who can shoulder responsibility. Address Box F 10, JOURNAL of the AVMA.

Wanted—2 experienced licensed veterinarians for small animal hospital in Chicago suburb starting Sept. 1, 1960. Address Box F 7, JOURNAL of the AVMA.

Wanted—veterinarian for active mixed practice in western Pennsylvania. Salary—\$6,500 for first year. One interested in dairy cattle preferred. At least 26 years old or military obligation fulfilled. Automobile furnished. No living quarters but average apartment rents for \$65. Can start immediately or after graduation. Names and addresses of previous assistants furnished if requested. Give full particulars. Address Box F 7, JOURNAL of the AVMA.

### Wanted—Positions

Veterinarian with 25 years' experience will do relief work for veterinarians going on vacation during July and August. Would give Chicago and Milwaukee areas first consideration. Competent in every phase of small animal practice. Can handle any size practice both financially and professionally. A-1 references given. Address Box F 19, JOURNAL of the AVMA.

Relief veterinarian available any evening after 4 P.M. Experienced with pet hospitals and large animals. Long Island only. Li. 1-9354.

Graduate (COL '58), married, fulfills service obligation in September, desires position with work and future, mixed or small animals. Licensed in Colorado, California, Kansas, Wyoming. Address Box E 54, JOURNAL of the AVMA.

Experienced veterinarian available for July and/or August in Metropolitan New York area. Address Box F 17, JOURNAL of the AVMA.

Veterinary attendant, reliable married man, 12 years' experience grooming and maintenance, desires position. Address Box F 18, JOURNAL of the AVMA.

Recent graduate (KSC '58), completing military obligation in July, desires one year in progressive mixed practice. Licensed in Kansas, Utah and Arizona. Address Box F 1, JOURNAL of the AVMA.

Recent graduate, some experience, completing advanced studies. Desires association with successful, progressive small animal practice in East or Midwest. Opportunity for wide surgical experience essential. Married, 29, two children. Please state terms. Address Box F 4, JOURNAL of the AVMA.

Veterinarian, pathologist, biologist, zootechnician, 62 years old, 30 years experience in USSR, Germany, US, seeks position in Los Angeles, Calif., or vicinity in research or industrial laboratory. US citizen. Address Box F 5, JOURNAL of the AVMA.

---

#### **Wanted—Practices**

---

Wanted—two-man small animal practice in Pacific Northwest, preferably state of Washington. Have capital available. Each man has 12 years' experience. Address Box E 57, JOURNAL of the AVMA.

---

#### **For Sale or Lease—Practices**

---

For sale or lease—mixed practice, Middle Atlantic state, established 11 years, netting \$10,000. Beautiful new home, landscaped, on main highway, hospital with 20 cages, outside runs. Sell for price—real estate and equipment. Address Box E 58, JOURNAL of the AVMA.

For sale—Penn Animal Hospital, formerly operated by the late Dr. Glenn, situated in center of Pittsburgh, Pa., corner plot. Lot 72' x 100', concrete block building, 32' x 70', one story, heat, and air conditioning, will accommodate approximately 100 dogs. Outside runways. All modern equipment, examination room, operation room, trimming and bath room plus X-ray equipment. Gross about \$80,000. Must sell to settle estate. Address Shoup Realty Co., 2111 Penn Ave., Pittsburgh 22, Pa.

For sale—well-established mixed practice in Missouri. Unusual opportunity for right man. Nets \$15,000 annually. Includes house, new hospital, drugs, equipment, etc. Priced \$32,000—one year's gross. Low down payment. Credit and personal references in first letter. Terms can be arranged. Address Box F 16, JOURNAL of the AVMA.

For rent—best-located small animal hospital in Kansas City, Mo. Ideal established clientele. Small investment. Address Box F 20, JOURNAL of the AVMA.

For sale—Wisconsin dairy practice, house and garage. Two-way radio optional. Grossing over \$25,000. Can practice with buyer as he gains experience if necessary. Address Box F 15, JOURNAL of the AVMA.

Houston, Texas, small and large animal clinic for 3 to 5 year lease. Fully equipped—runs, cages, X-ray, surgery, laboratories. Located on main southeast road. Address Box 45758, Houston 45, Texas.

### ***Moving?***

If so, let us know your new address at least five weeks in advance.

And when you write, be sure to enclose an old address label clipped from a recent JOURNAL envelope. It will help us give you better service. Send your change of address to the JOURNAL of the American Veterinary Medical Association, 600 S. Michigan Ave., Chicago 5, Ill.

For sale or lease—modern hospital and practice. Average gross for last 5 years—\$38,000. Real estate value—\$42,000. Open for offers. Address Box E 53, JOURNAL of the AVMA.

(Continued on adv. p. 70)

### **Dr. A. Q. Britton Named Fort Dodge Vice President**

Dr. Allan Q. Britton (OSU '42) has been appointed a vice president of the Fort Dodge Laboratories Division of American Home Products Corporation, Fort Dodge, Iowa.

Dr. Britton joined the company in 1949 as assistant superintendent of the biological farm. He was in charge of the firm's anti-hog cholera serum plant at Okmulgee, Okla.,



**Dr. Allan Q. Britton**

from February to September, 1951, when he returned to Fort Dodge to fill the position of plant superintendent. In 1957, he assumed his present duties as production superintendent.

Dr. John Ravnikar (KSU '57) and Dr. John R. Eppey (OSU '58) have joined the Fort Dodge Laboratories professional staff. Dr. Ravnikar is assistant to the director of the biological laboratories and Dr. Eppey, diagnostician. Dr. Harlen Englebrecht, formerly diagnostician, has joined the staff of the biological product development department.

Eastern Nebraska practice for sale or lease, 90% large animal. Furnished house, office, drugs, equipment and instruments. Address Box C 18, JOURNAL of the AVMA.

I have some good hospitals now, and need more for spring. To buy, sell or lease in the Southwest contact Charles E. Doyle, DVM. Practice and Real Estate broker, 5930 N. W. 39th St., Okla. City, Okla.

For sale—Southern California small animal practice. Nets \$10,000. No real estate; good lease. Price—\$6,000 with \$2,500 down. Address Box F 21, JOURNAL of the AVMA.

For sale—established Central Illinois general practice. Residence, office, equipment, drugs and office furniture. Easy terms. Address Box F 2, JOURNAL of the AVMA.

For sale—Virginia mixed practice, 70% large animals. Completely equipped animal hospital with living quarters. Gross over \$22,000. Complete price—\$20,000. \$3,500 down to handle. Must have Virginia license. Address Box F 11, JOURNAL of the AVMA.

For sale—small animal hospital in California East Bay area. Established 3½ years, 45 Kirschner cages, grossing \$31,000 per year. \$25,000 will handle. Must sell for personal reasons. Address Box F 6, JOURNAL of the AVMA.

For sale—one of the best mixed practices in the Northeast. Approximately 70% dairy cattle; balance equine and small animals. Requires either a "hustler" or 2 veterinarians. Priced according to annual gross; terms arranged. Address Box F 9, JOURNAL of the AVMA.

For sale or lease—growing practice near Jackson, Mich. 80% large animal. \$25,000 annual gross. Three bedroom home, attached office, reception, examining, treatment rooms, kennel. \$32,000. Terms. Address Rogers Realty, 410 S. Jackson St., Jackson, Mich.

### Miscellaneous

Wanted—epileptic dogs for research in anticonvulsant therapy. All handling expenses paid. Address Box E 8, JOURNAL of the AVMA.

## Index to Advertisers

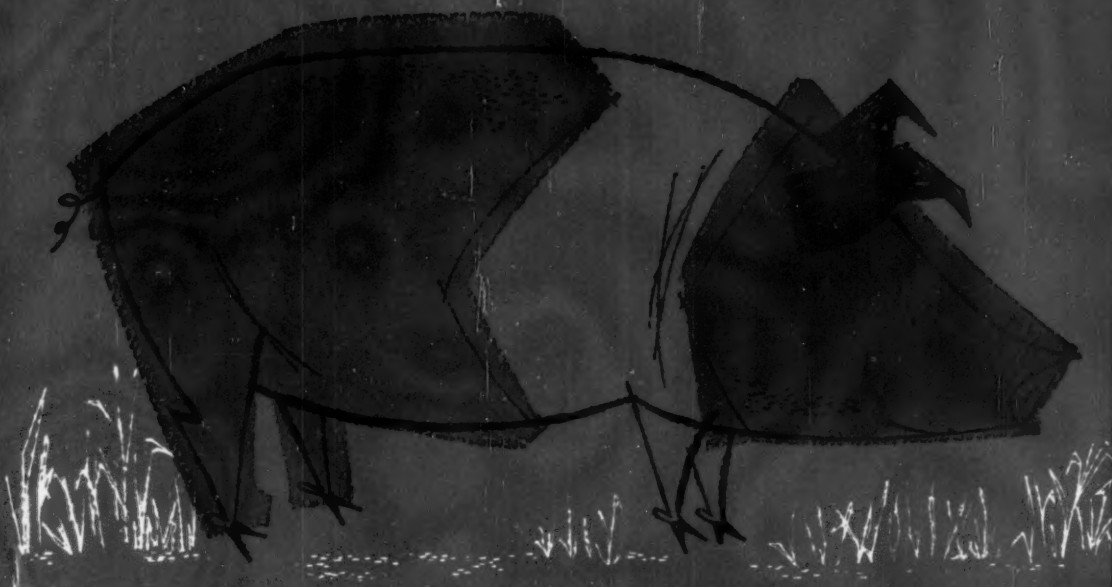
Abbott Laboratories	7	Jensen-Salsbery Laboratories, Inc.	4th cover
Veterinary anesthetics	13	Jenotone	
Affiliated Laboratories, Inc.	17	Lea & Febiger	
Alcon Laboratories, Inc.	19	Books	16
Veterinary Eye Treatment set	23	Liability Insurance	6
American Cystoscope Makers, Inc.	23	McCabe-Powers Body Co.	27
Endoscope	15	Mobile equipment	
American Optical Company	20	Massengill, S. E. Co.	63
Hb Meter	21	Keraspray	
Armour Laboratories, Inc.	20	Merck and Co., Inc.	57
Kymar, Tryptar-Vet.	21	Hydeltone T.B.A.	
Adrenomone D-40, ACB 12	64	Nicholson Manufacturing Co.	47
Brinkman Manufacturing Co.	58	Veterinary equipment	
Portable dog pens	48	Norden Laboratories	1
Carter-Luff Chemical Co.	63	Leptospirosis vaccine	
M.A.C.	10	Parke-Davis and Company	33
Ciba Pharmaceutical Products, Inc.	45	Benadryl	
Ultracortisol	29	Parlam Corporation	8, 9
Clipper Service	67	Sebumsol	
Sharpening service	58	Pfizer Laboratories	17, 18
Cotwell Publishing Co.	37	Liquamycin	
Daily Log	34	Terramycin, Cota-Terramycin	30, 31
Corn Belt Laboratories	32	Piuman-Moore Company	3
NEOBLU aerosol	5	Bactrovet	3rd cover
Corn States Laboratories	66	Professional Men's Indexing Service	59
Duragen	32	Professional Printing Co.	
Brevane	32	Histacount	6
Diamond Laboratories	55	Puss 'n Boots	
Neo-Vac	55	Cat food	61
East River Wire Works	55	Schering Corporation	11
Animal cages	55	Swivax	41
Eaton Laboratories	55	Amp-Vac	
Fluradantin	55	Squibb and Sons	24, 25, 26
Fort Dodge Laboratories	55	Panalog	
Chuzits	55	Stockwell Manufacturing Co.	56
Fromm Laboratories	55	Veterinary tables	
Canine distemper vaccine	55	Sun-Ray Hair Preparations	63
Heldenbrand and Son	55	Heater and dryer	
Cattle chute	55	Upjohn Corporation	28
Hill Packing Company	55	Unipet	
41/d	55	Winthrop Laboratories	
Instruments de Chirurgie Morin	55	Canine distemper vaccine	53
Surgical instruments	55		



# **SAFETY**

# **FIRST...**

**with lasting protection**



# **Swivax**

**\*The superior  
hog-cholera vaccine  
for SOLID immunity...**

**MODIFIED LIVE VIRUS • RABBIT ORIGIN • VACUUM DRIED**

**\*REGISTERED TRADE MARK**

**(Licensed under U.S. Patent 2518978)**

**PITMAN-MOORE COMPANY**



**division of  
ALLIED LABORATORIES, INC.**

**NEW**

**Jen-Sal**

The Only Effective Antispasmodic  
with DIRECT Musculotropic ACTION  
that "NORMALIZES" ALL Smooth Muscles  
including Sphincters . . . without  
Side Effects



RESPIRATORY



DIGESTIVE



URINARY



REPRODUCTIVE

**CANINE**



**INDICATIONS:**

- urethral calculi and bladder sphincter spasms.
- obstetrical complications as in pre and post parturient straining or prolapsing and in cervical spasm.
- vomiting control as in nephritis or poisoning.
- anal prolapse.
- coughing spasms as in kennel cough.

When faced with the common problem of smooth muscle hypertonicity, rely upon musculotropic Jenotone for quick, consistent results. For both primary and adjunctive therapy, you will be pleased with Jenotone's efficacy, safety, convenience and economy.

**FELINE**



- spasms of ureter, bladder sphincter and urethra.

**EQUINE**



- tenesmus in enteritis.
- subacute and chronic scours to "normalize" hyper-motility of intestinal tract.
- flatulent and spasmodic colic to relieve painful spasms.
- choke spasms.

Jenotone Tablets, 25 mg., are supplied in bottles of 50. Jenotone Solution, 25 mg./cc. is supplied in 10 cc. and 50 cc. vials. Order Jenotone now from your Jen-Sal representative or Jen-Sal branch.

**JENOTONE**

another new and exclusive product of

*Write for case reports*



Jensen-Salsbery Laboratories, Inc.  
P.O. Box 167, Kansas City 41, Mo.



